ACCESS DB # 192714

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Scientific and Technical Information Center

SEARCH REQUEST FORM

Requester's Full Name: SABIHA QAZI Examiner #: 74141 Date: 6/12/06

Art Unit: 1616 Phone Number: 2-0622 Serial Number: 10/500,532

Location (Bldg/Room#): _____ (Mailbox #): 4C70 Results Format Preferred (circle): ~~PAPER~~ DISK

****

4A45 Raw

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following:

Title of Invention: Process of Prep. of 1-3-(dimethylamino)propyl-1-(4- - - - - -

Inventors (please provide full names): Rajamannar et al

Earliest Priority Date: 1/7/2002 (371)

Search Topic:

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.

For Sequence Searches Only ***Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.***

eg 1-3, 5-22, , 41-42, 44,45,47

Please search for benzofuran & I formula 1, 2

called as citalopram

Please include Inventors + assignee search

Thank You

****

STAFF USE ONLY

Searcher: Sabiha Qazi

Searcher Phone #: _____

Searcher Location: _____

Date Searcher Picked Up: 6/19/06

Date Completed: 6/19/06

Searcher Prep & Review Time: 30min

Online Time: 67min

Type of Search

_____ NA Sequence (#)

_____ AA Sequence (#)

_____ Structure (#)

_____ Bibliographic

_____ Litigation

_____ Fulltext

_____ Other

Vendors and cost where applicable

_✓_ STN _____ Dialog

_____ Questel/Orbit _____ Lexis/Nexis

_____ Westlaw _____ WWW/Internet

____ In-house sequence systems

__Commercial ___Oligomer ____Score/Length

__ Interference ___ SPDI ____ Encode/Transl

_____ Other (specify)

PATENT ASSIGNEE(S): Pharmachem Technologies Limited, UK
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003029236	A1	20030410	WO 2002-EP10645	20020923
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003153774	A1	20030814	US 2002-242322	20020911
US 6967259	B2	20051122		
CA 2461213	AA	20030410	CA 2002-2461213	20020923
EP 1430044	A1	20040623	EP 2002-779403	20020923
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CN 1556800	A	20041222	CN 2002-818642	20020923
JP 2005507900	T2	20050324	JP 2003-532485	20020923
NO 2004001200	A	20040323	NO 2004-1200	20040323
ZA 2004002273	A	20050323	ZA 2004-2273	20040323
US 2006074253	A1	20060406	US 2005-285995	20051122

PRIORITY APPLN. INFO.:

US 2001-324821P	P	20010924
US 2002-242322	A	20020911
WO 2002-EP10645	W	20020923

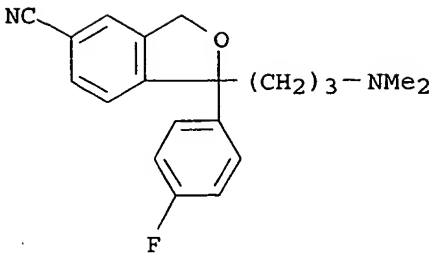
OTHER SOURCE(S): CASREACT 138:305791

AB The present invention provides a process for the preparation of Citalopram, a known antidepressant.

IT **59729-32-7P 59729-33-8P**, Citalopram **64169-39-7P**
RL: **IMF (Industrial manufacture)**; **RCT (Reactant)**; **PREP (Preparation)**; **RACT (Reactant or reagent)**
(process for the preparation of citalopram and derivs.)

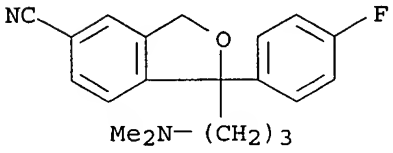
RN 59729-32-7 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)

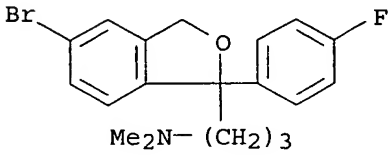


● HBr

RN 59729-33-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)

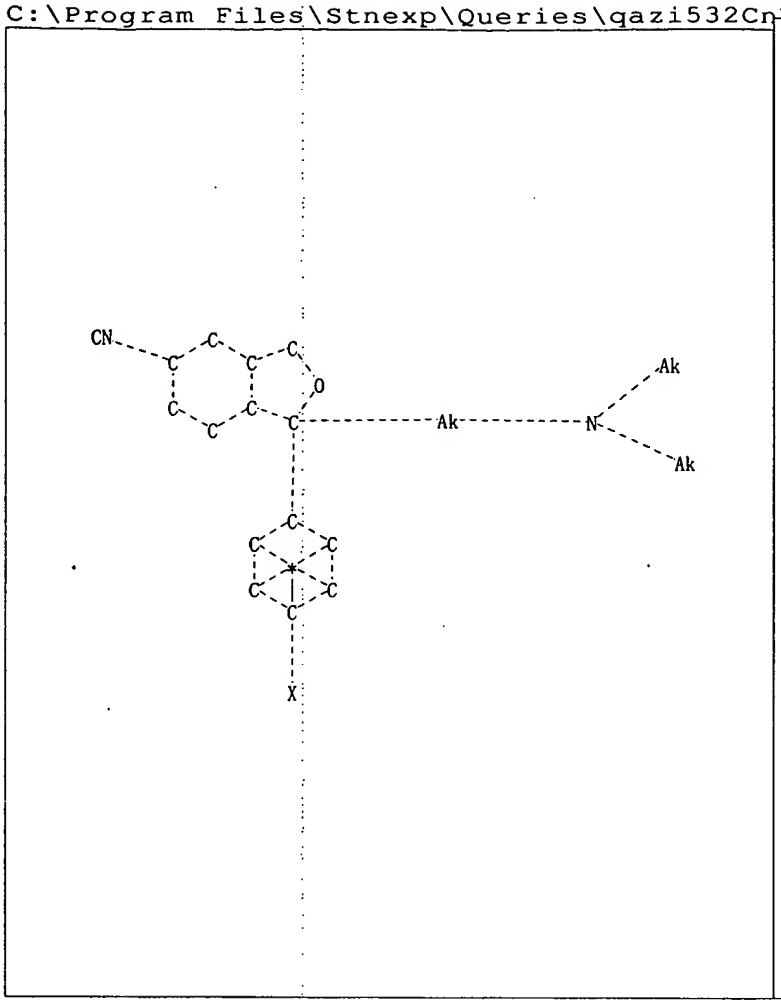


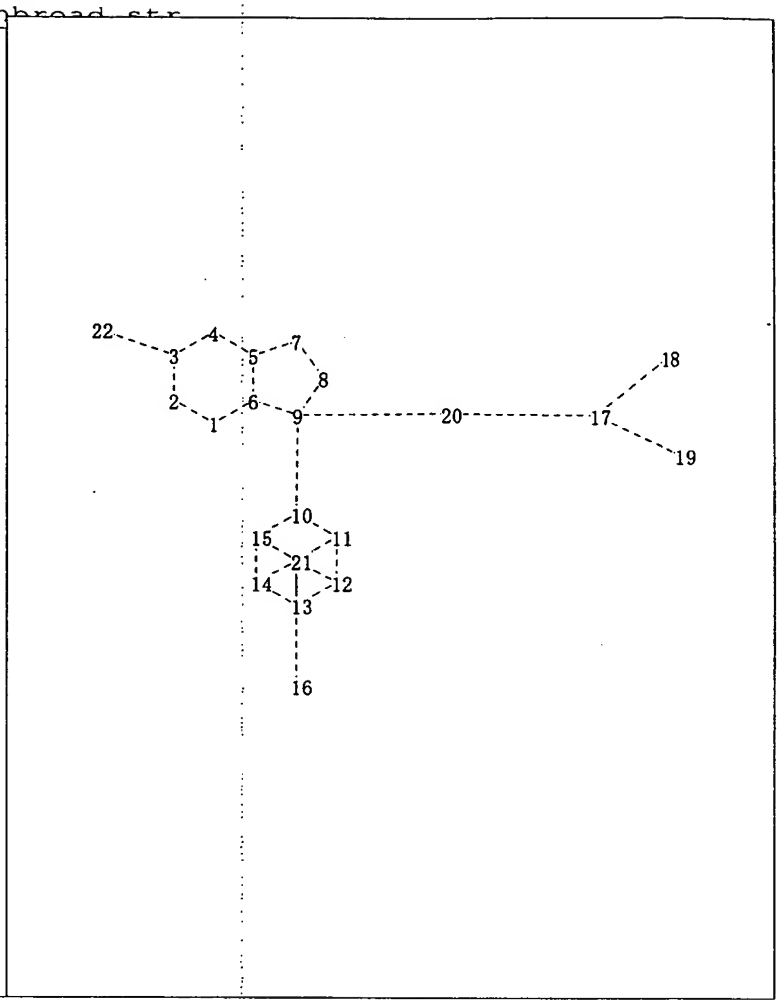
REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 13 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:172971 CAPLUS
DOCUMENT NUMBER: 138:221462
TITLE: Improved process for the manufacture of citalopram hydrobromide from 5-bromophthalide
PATENT ASSIGNEE(S): Sekhsaria Chemicals Ltd., India
SOURCE: Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1288211	A1	20030305	EP 2002-255750	20020819

C:\Program Files\Stnexp\Queries\qazi532Cnbroad.str

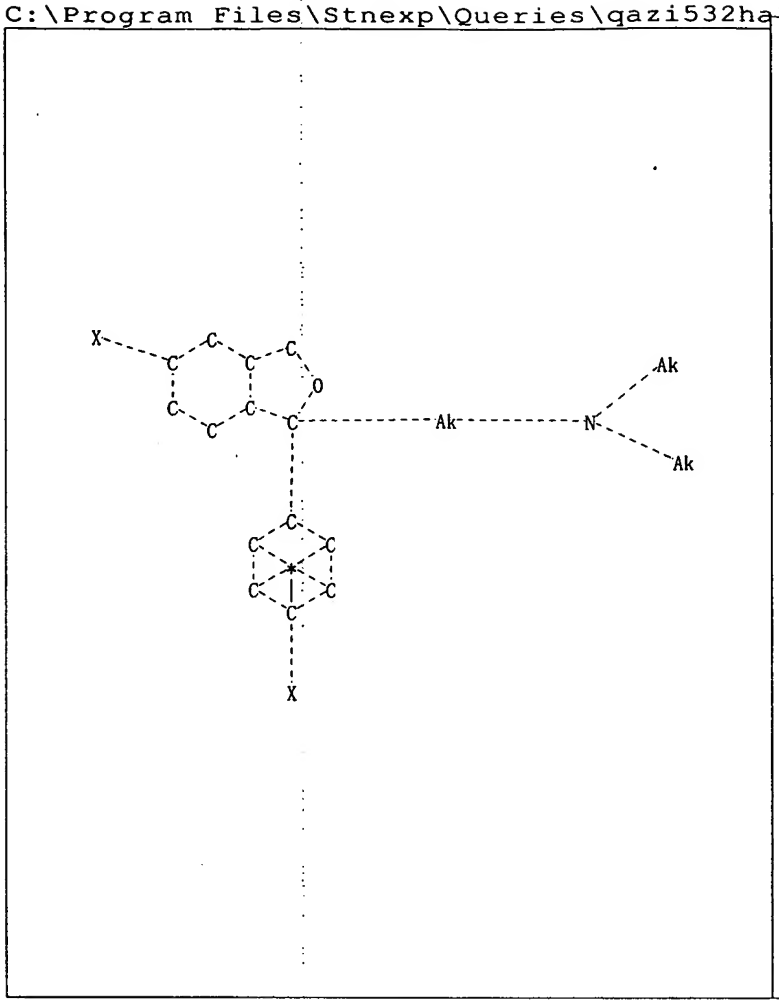


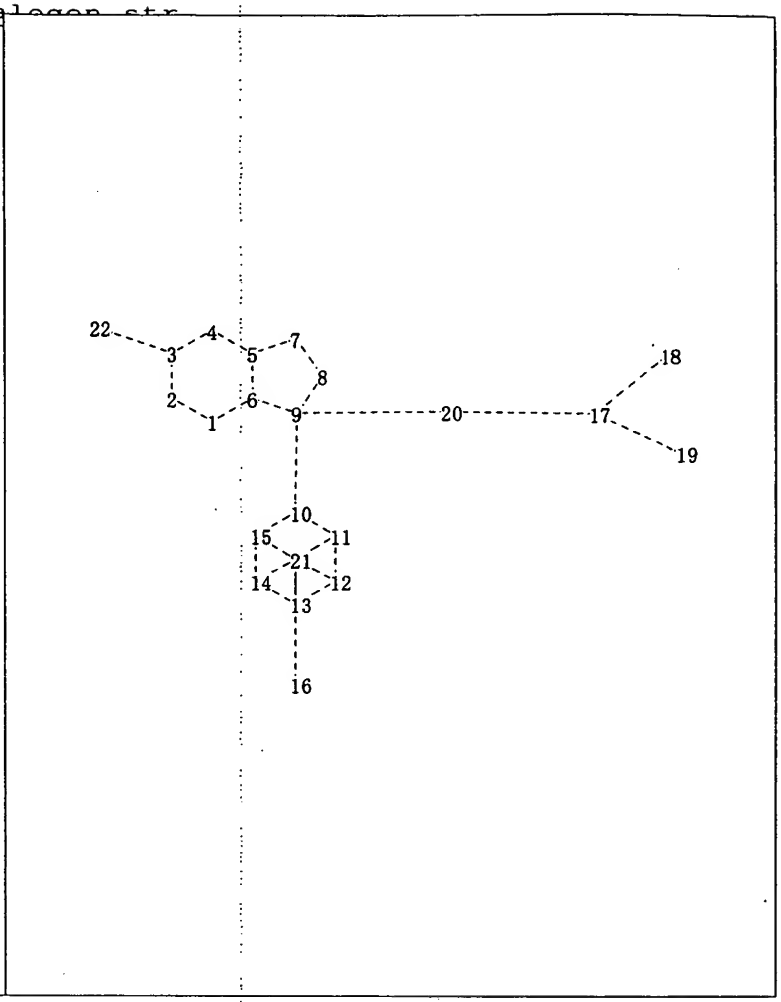


chain nodes :
16 17 18 19 20 22
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
chain bonds :
3-22 9-10 9-20 17-19 17-18 17-20
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 10-11 10-15 11-12
12-13 13-14 14-15
exact/norm bonds :
1-2 1-6 2-3 3-4 3-22 4-5 5-6 5-7 6-9 7-8 8-9 9-10 9-20 10-11
10-15 11-12 12-13 13-14 14-15 17-19 17-18 17-20

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom
10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:CLASS 17:CLASS
18:CLASS 19:CLASS 20:CLASS 21:CLASS 22:CLASS

C:\Program Files\Stnexp\Queries\qazi532halogen.str



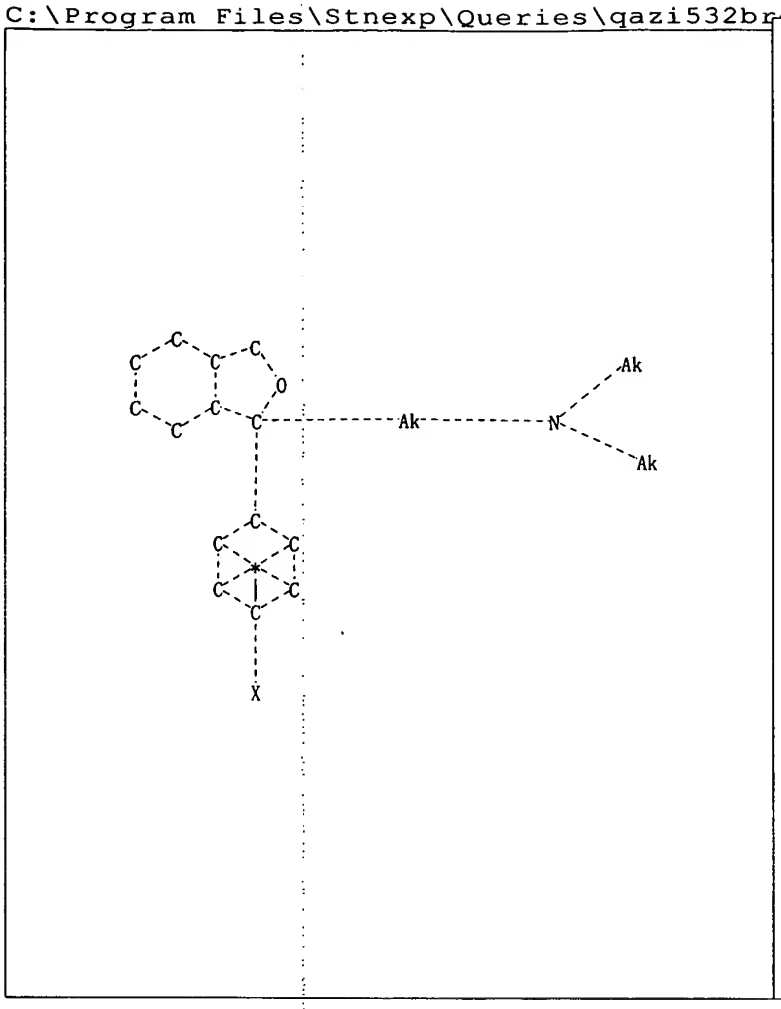


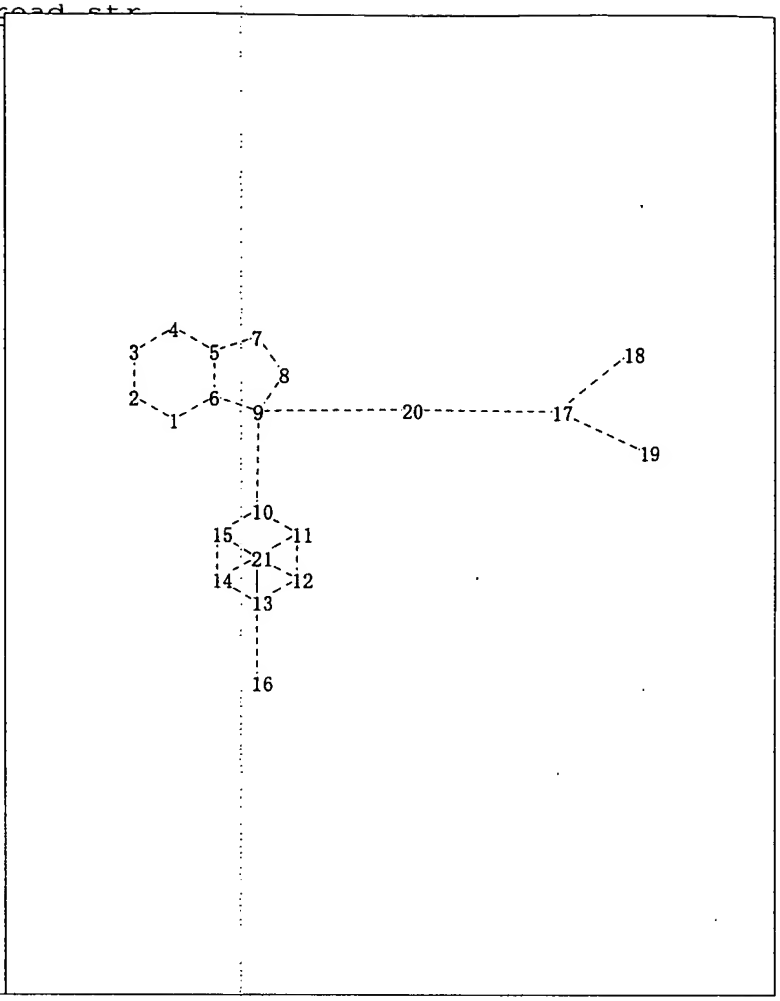
chain nodes :
16 17 18 19 20 22
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
chain bonds :
3-22 9-10 9-20 17-19 17-18 17-20
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 10-11 10-15 11-12
12-13 13-14 14-15
exact/norm bonds :
1-2 1-6 2-3 3-4 3-22 4-5 5-6 5-7 6-9 7-8 8-9 9-10 9-20 10-11
10-15 11-12 12-13 13-14 14-15 17-19 17-18 17-20

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom
10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:CLASS 17:CLASS
18:CLASS 19:CLASS 20:CLASS 21:CLASS 22:CLASS

Subset 1
(Reactant)

C:\Program Files\Stnexp\Queries\qazi532broad.str





chain nodes :
16 17 18 19 20
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
chain bonds :
9-10 9-20 17-19 17-18 17-20
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 10-11 10-15 11-12
12-13 13-14 14-15
exact/norm bonds :
1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 9-10 9-20 10-11 10-15
11-12 12-13 13-14 14-15 17-19 17-18 17-20

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom
10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:CLASS 17:CLASS
18:CLASS 19:CLASS 20:CLASS 21:CLASS

Broad Struct.

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=> d his nofile

     (FILE 'HOME' ENTERED AT 13:55:54 ON 19 JUN 2006)

     FILE 'CAPLUS' ENTERED AT 14:03:44 ON 19 JUN 2006
                E US2004-500532/APPS
L1              1 SEA ABB=ON  PLU=ON  US2004-500532/AP
                D BROWSE
                E RAJAMANNAR T/AU
L2             21 SEA ABB=ON  PLU=ON  ("RAJAMANNAR T"/AU OR "RAJAMANNAR THENNATI"
                /AU)
                E SRINIVASU K/AU
L3              6 SEA ABB=ON  PLU=ON  "SRINIVASU K"/AU
                E PATEL N/AU
L4            184 SEA ABB=ON  PLU=ON  ("PATEL N"/AU OR "PATEL N S"/AU OR "PATEL
                N S A"/AU OR "PATEL NAME NOT TRANSLATED"/AU OR "PATEL NILESH"/A
                U OR "PATEL NILESHKUMAR"/AU OR "PATEL NILESHKUMAR SURESHBAI"/AU
                 OR "PATEL NILESHKUMAR SURESHBHAI"/AU)
                E RAJENDRAN C/AU
L5             13 SEA ABB=ON  PLU=ON  ("RAJENDRAN C"/AU OR "RAJENDRAN C P"/AU OR
                "RAJENDRAN C PANCHAPAKESA"/AU)
L6              0 SEA ABB=ON  PLU=ON  (L2 AND (L3 OR L4 OR L5)) OR (L3 AND (L4
                OR L5)) OR (L4 AND L5)
L7            224 SEA ABB=ON  PLU=ON  (L2 OR L3 OR L4 OR L5)
L8              1 SEA ABB=ON  PLU=ON  L7 AND L1
                E SUN /CS,PA
L9              1 SEA ABB=ON  PLU=ON  ("SUN A PHARM CO LTD"/CS OR "SUN A PHARM
                CO LTD"/PA OR "SUN A PHARM CO LTD JAPAN"/CS OR "SUN A PHARM CO
                LTD JAPAN"/PA)
                E SUN P/CS,PA
                E SUN PHARM?/CS,PA
L10           434 SEA ABB=ON  PLU=ON  SUN PHARM?/CS,PA
                D BIB
                D BIB 3
L11             0 SEA ABB=ON  PLU=ON  SUN/OBI (1W)PHARM?/CS,PA
                E SUB PHARM/AU
                E SUB PHARM/CS,PA
                E SUN PHARM/CS,PA
L12            96 SEA ABB=ON  PLU=ON  ("SUN PHARM CORP POMPANO BEACH FL USA"/CS
                OR "SUN PHARM IND VADODARA 390 007 INDIA"/CS OR "SUN PHARM LTD
                POMPANO BEACH FL USA"/CS OR "SUN PHARMA ADVANCE RESEARCH
                CENTER BARODA 390 020 INDIA"/CS OR "SUN PHARMA ADVANCE
                RESEARCH CENTER VADODARA 390 020 INDIA"/CS OR "SUN PHARMA
                ADVANCED RES CENT AKOTA GUJARAT INDIA"/CS OR "SUN PHARMA
                ADVANCED RESEARCH CENTRE AKOTA VADODARA 390020 INDIA"/CS OR
                "SUN PHARMA ADVANCED RESEARCH CENTRE BARODA 390 020 GJ
                INDIA"/CS OR "SUN PHARMA ADVANCED RESEARCH CENTRE BARODA
                GUJARAL 390 020 INDIA"/CS OR "SUN PHARMA ADVANCED RESEARCH
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                S OR "SUN PHARMACEUTICAL INDUSTRIES LIMITED"/PA OR "SUN
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                CAL INDUSTRIES LIMITED INDIA"/PA OR "SUN PHARMACEUTICAL
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                S INDUSTRIES LTD INDIA"/PA)
L13           96 SEA ABB=ON  PLU=ON  L10 AND L12
L14           11 SEA ABB=ON  PLU=ON  L13 AND (L1 OR L2 OR L3 OR L4 OR L5)
                E CITALOPRAM/CT
                E E3+ALL
L15         1720 SEA ABB=ON  PLU=ON  CITALOPRAM+PFT/CT
L16        15343 SEA ABB=ON  PLU=ON  (BENZOFURAN?)/OBI,BI
L17         2355 SEA ABB=ON  PLU=ON  (CITALOPRAM?)/OBI,BI
L18            3 SEA ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4 OR L5 OR L13) AND
                (L15 OR L16 OR L17)

     FILE 'REGISTRY' ENTERED AT 14:21:48 ON 19 JUN 2006
L19               STRUCTURE UPLOADED
L20            5 SEA SSS SAM L19
                D QUE L19
L21          385 SEA SSS FUL L19

     FILE 'CAPLUS' ENTERED AT 14:24:11 ON 19 JUN 2006
L22         1889 SEA ABB=ON  PLU=ON  L21
L23         1825 SEA ABB=ON  PLU=ON  L22 AND (L15 OR L16 OR L17)
L24         1025 SEA ABB=ON  PLU=ON  L23 NOT (PY>2002 OR PRY>2002 OR AY>2002)

     FILE 'STNGUIDE' ENTERED AT 14:27:10 ON 19 JUN 2006

     FILE 'REGISTRY' ENTERED AT 14:28:52 ON 19 JUN 2006
L25               STRUCTURE UPLOADED
L26           20 SEA SSS SAM L25
L27           20 SEA SUB=L21 SSS SAM L25
L28          351 SEA SUB=L21 SSS FUL L25
L29               STRUCTURE UPLOADED
L30           11 SEA SUB=L21 SSS SAM L29
L31          207 SEA SUB=L21 SSS FUL L29

     FILE 'CAPLUS' ENTERED AT 14:33:06 ON 19 JUN 2006

     FILE 'REGISTRY' ENTERED AT 14:33:10 ON 19 JUN 2006

     FILE 'CAPLUS' ENTERED AT 14:33:26 ON 19 JUN 2006
L32         1887 SEA ABB=ON  PLU=ON  L31
L33               ANALYZE PLU=ON  L32 1-1887 RN :   15932 TERMS
                  D

     FILE 'REGISTRY' ENTERED AT 14:35:14 ON 19 JUN 2006
L34            1 SEA ABB=ON  PLU=ON  59729-33-8
                D SCAN

     FILE 'CAPLUS' ENTERED AT 14:35:45 ON 19 JUN 2006
L35         1720 SEA ABB=ON  PLU=ON  L34

     FILE 'REGISTRY' ENTERED AT 14:36:52 ON 19 JUN 2006
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                D QUE L25
L36             STRUCTURE UPLOADED
L37             STRUCTURE UPLOADED
L38           1 SEA SUB=L21 SSS SAM L36
                D SCAN
L39          49 SEA SUB=L21 SSS FUL L36
L40          10 SEA SUB=L21 SSS SAM L37
L41         180 SEA SUB=L21 SSS FUL L37

     FILE 'CAPLUS' ENTERED AT 14:42:04 ON 19 JUN 2006
L42         115 SEA ABB=ON  PLU=ON  L41 (L) PREP+ALL/RL
L43          26 SEA ABB=ON  PLU=ON  L39 (L) RACT+ALL/RL
L44          25 SEA ABB=ON  PLU=ON  L42 AND L43
L45          25 SEA ABB=ON  PLU=ON  (L44 OR L1)

     FILE 'REGISTRY' ENTERED AT 14:43:56 ON 19 JUN 2006
                E CITALOPRAM/CN
L46           1 SEA ABB=ON  PLU=ON  CITALOPRAM/CN
                D SCAN

     FILE 'BEILSTEIN' ENTERED AT 14:44:54 ON 19 JUN 2006
L47           9 SEA SSS FUL L36
L48          15 SEA SSS FUL L37
                SEL L47 BRN
L49           2 SEA ABB=ON  PLU=ON  (1393707/RX.RBRN OR 1393708/RX.RBRN OR
                1393784/RX.RBRN OR 1436009/RX.RBRN OR 1436010/RX.RBRN OR
                1436012/RX.RBRN OR 1436013/RX.RBRN OR 1436014/RX.RBRN OR
                1437155/RX.RBRN)
                SEL BRN L48
L*** DEL     15 S E10-E24
L50           8 SEA ABB=ON  PLU=ON  (10025981/RX.PBRN OR 10027939/RX.PBRN OR
                10027940/RX.PBRN OR 10034335/RX.PBRN OR 1397373/RX.PBRN OR
                1397374/RX.PBRN OR 1397419/RX.PBRN OR 4092181/RX.PBRN OR
                5368282/RX.PBRN OR 8457580/RX.PBRN OR 8459631/RX.PBRN OR
                9001443/RX.PBRN OR 9001444/RX.PBRN OR 9826316/RX.PBRN OR
                9826317/RX.PBRN)
L51           0 SEA ABB=ON  PLU=ON  L49 AND L50
L52          10 SEA ABB=ON  PLU=ON  (L49 OR L50)

     FILE 'STNGUIDE' ENTERED AT 14:49:16 ON 19 JUN 2006

     FILE 'BEILSTEIN' ENTERED AT 14:55:39 ON 19 JUN 2006
                D L50 1

     FILE 'CAPLUS' ENTERED AT 14:56:55 ON 19 JUN 2006
L53          12 SEA ABB=ON  PLU=ON  (L14 OR L18)
L54           3 SEA ABB=ON  PLU=ON  L45 NOT (PY>2002 OR PRY>2002 OR AY>2002)
L55        1824 SEA ABB=ON  PLU=ON  L32 AND (L15 OR L16 OR L17)

=> file caplus
FILE 'CAPLUS' ENTERED AT 15:01:02 ON 19 JUN 2006
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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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FILE LAST UPDATED: 18 Jun 2006 (20060618/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply.
They are available for your review at:

http://www.cas.org/infopolicy.html
'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

=> d que l53
L1 1 SEA FILE=CAPLUS ABB=ON PLU=ON US2004-500532/AP
L2 21 SEA FILE=CAPLUS ABB=ON PLU=ON ("RAJAMANNAR T"/AU OR "RAJAMANNAR THENNATI"/AU)
L3 6 SEA FILE=CAPLUS ABB=ON PLU=ON "SRINIVASU K"/AU
L4 184 SEA FILE=CAPLUS ABB=ON PLU=ON ("PATEL N"/AU OR "PATEL N S"/AU OR "PATEL N S A"/AU OR "PATEL NAME NOT TRANSLATED"/AU OR "PATEL NILESH"/AU OR "PATEL NILESHKUMAR"/AU OR "PATEL NILESHKUMAR SURESHBAI"/AU OR "PATEL NILESHKUMAR SURESHBHAI"/AU)
L5 13 SEA FILE=CAPLUS ABB=ON PLU=ON ("RAJENDRAN C"/AU OR "RAJENDRAN C P"/AU OR "RAJENDRAN C PANCHAPAKESA"/AU)
L10 434 SEA FILE=CAPLUS ABB=ON PLU=ON SUN PHARM?/CS,PA
L12 96 SEA FILE=CAPLUS ABB=ON PLU=ON ("SUN PHARM CORP POMPANO BEACH FL USA"/CS OR "SUN PHARM IND VADODARA 390 007 INDIA"/CS OR "SUN PHARM LTD POMPANO BEACH FL USA"/CS OR "SUN PHARMA ADVANCE RESEARCH CENTER BARODA 390 020 INDIA"/CS OR "SUN PHARMA ADVANCE RESEARCH CENTER VADODARA 390 020 INDIA"/CS OR "SUN PHARMA ADVANCED RES CENT AKOTA GUJARAT INDIA"/CS OR "SUN PHARMA ADVANCED RESEARCH CENTRE AKOTA VADODARA 390020 INDIA"/CS OR "SUN PHARMA ADVANCED RESEARCH CENTRE BARODA 390 020 GJ INDIA"/CS OR "SUN PHARMA ADVANCED RESEARCH CENTRE BARODA GUJARAL 390 020 INDIA"/CS OR "SUN PHARMA ADVANCED RESEARCH CENTRE BARODA INDIA"/CS OR "SUN PHARMA ADVANCED RESEARCH CENTRE VADODARA 390020 INDIA"/CS OR "SUN PHARMA ADVANCED RESEARCH CENTRE VADODARA INDIA"/CS OR "SUN PHARMACEUTICAL CORP"/CS OR "SUN PHARMACEUTICAL CORP"/PA OR "SUN PHARMACEUTICAL CORP USA"/CS OR "SUN PHARMACEUTICAL CORP USA"/PA OR "SUN PHARMACEUTICAL IND LTD"/CS OR "SUN PHARMACEUTICAL IND LTD"/PA OR "SUN PHARMACEUTICAL IND LTD INDIA"/CS OR "SUN PHARMACEUTICAL IND LTD INDIA"/PA OR "SUN PHARMACEUTICAL INDUSTRIES LIMITED"/CS OR "SUN PHARMACEUTICAL INDUSTRIES LIMITED"/PA OR "SUN PHARMACEUTICAL INDUSTRIES LIMITED INDIA"/CS OR "SUN PHARMACEUTICAL INDUSTRIES LIMITED INDIA"/PA OR "SUN PHARMACEUTICAL INDUSTRIES LTD"/CS OR "SUN PHARMACEUTICAL INDUSTRIES LTD"/PA OR "SUN PHARMACEUTICAL INDUSTRIES LTD INDIA"/CS OR "SUN PHARMACEUTICAL INDUSTRIES LTD INDIA"/PA OR "SUN PHARMACEUTICALS ADVANCED RESEARCH CENTRE VADODARA INDIA"/CS OR "SUN PHARMACEUTICALS CORPORATION"/CS OR "SUN PHARMACEUTICALS CORPORATION"/PA OR "SUN PHARMACEUTICALS CORPORATION USA"/CS OR "SUN PHARMACEUTICALS CORPORATION USA"/PA OR "SUN PHARMACEUTICALS INDUSTRIES LTD"/CS OR "SUN PHARMACEUTICALS INDUSTRIES LTD"/PA OR "SUN PHARMACEUTICALS INDUSTRIES LTD INDIA"/CS OR "SUN PHARMACEUTICALS INDUSTRIES LTD INDIA"/PA)

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L13          96 SEA FILE=CAPLUS ABB=ON  PLU=ON  L10 AND L12
L14          11 SEA FILE=CAPLUS ABB=ON  PLU=ON  L13 AND (L1 OR L2 OR L3 OR L4
                OR L5)
L15        1720 SEA FILE=CAPLUS ABB=ON  PLU=ON  CITALOPRAM+PFT/CT
L16       15343 SEA FILE=CAPLUS ABB=ON  PLU=ON  (BENZOFURAN?)/OBI,BI
L17        2355 SEA FILE=CAPLUS ABB=ON  PLU=ON  (CITALOPRAM?)/OBI,BI
L18           3 SEA FILE=CAPLUS ABB=ON  PLU=ON  (L1 OR L2 OR L3 OR L4 OR L5 OR
                L13) AND (L15 OR L16 OR L17)
L53          12 SEA FILE=CAPLUS ABB=ON  PLU=ON  (L14 OR L18)

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L53  ANSWER 1 OF 12  CAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:         2006:380769  CAPLUS
DOCUMENT NUMBER:          144:412891
TITLE:                    Preparation of aminocycloalkanedicarboxylic acids and
                          related compounds as immunosuppressive agents
INVENTOR(S):              Capet, Marc; Levoin, Nicolas; Berrebi-Bertrand,
                          Isabelle; Poupardin, Olivia; Robert, Philippe;
                          Schwartz, Jean-Charles; Lecomte, Jeanne-Marie;
                          Rajamannar, Thennati; Pal, Ranjan Kumar;
                          Samanta, Biswajit; Jivani, Jignesh K.; Panchal,
                          Bhavesh M.; Bhatt, Isha H.; Aradhye, Jayraj D.
PATENT ASSIGNEE(S):       Bioprojet, Fr.; Sun Pharmaceuticals Industries
                          Ltd.
SOURCE:                   Eur. Pat. Appl., 39 pp.
                          CODEN: EPXXDW
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.         DATE
     ---------------      ----   --------    --------------------    --------
     EP 1650186            A1    20060426    EP 2004-292517          20041022
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR
     WO 2006043149         A2    20060427    WO 2005-IB3113          20051018
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
             GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ,
             LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ,
             NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,
             SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,
             YU, ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
             IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
             CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
             GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
             KG, KZ, MD, RU, TJ, TM
PRIORITY APPLN. INFO.:                   EP 2004-292517      A  20041022
AB   The invention relates to amino dicarboxylic acid derivs.
     Ar1-Y10-1-X0-1-Ar20-1-Y2-NR'-Y30-1-Z(CO2R'')COR''' [Ar1, Ar2 are
     (un)substituted aryl; Y1, Y2, Y3 are (un)substituted alkyl chains; X is a
     heteroatom; R', R'' are independently H or an (un)substituted alkyl chain;
     R''' is OH, alkoxy, H, an amino group, a natural or synthetic amino acid;
     Z is cycloalkyl, heterocyclyl, aryl, heteroaryl, CH, C-alkyl or Z and R'
     may form a ring; CO2R'' and COR''' are attached to the same atom or
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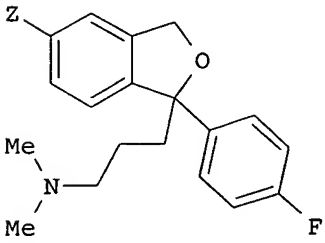
adjacent atoms] which display agonistic activity at sphingosine-1-phosphate (S1P) receptors for use as immunosuppressive agents. Thus, 3-(4-nonylbenzylamino)cyclopentane-1,1-dicarboxylic acid was prepared and shown to activate the S1P1 receptor (EC50 = 6) nM.
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 2 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2006:194068 CAPLUS
DOCUMENT NUMBER: 144:274127
TITLE: Process for preparation of **citalopram** and its enantiomers via acid or base cyclization of the diol
INVENTOR(S): Periyandi, Nagarajan; Kilaru, Srinivasu; Thennati, Rajamannar
PATENT ASSIGNEE(S): **Sun Pharmaceutical Industries Limited, India**
SOURCE: PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006021971	A2	20060302	WO 2005-IN276	20050812

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: IN 2004-MU912 A 20040823
OTHER SOURCE(S): MARPAT 144:274127
GI



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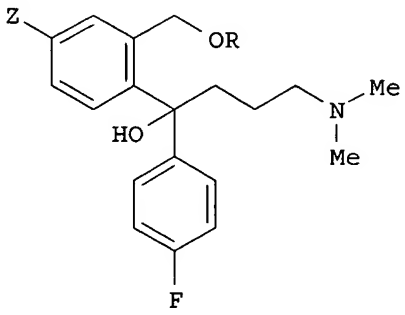


II

AB The invention provides a process for preparation of 1-[3-(dimethylamino)propyl]-

1-(4-fluorophenyl)-1,3-dihydro-5-isobenzofurancarbonitrile I (Z = CN; **citalopram**) and its enantiomers. The process for preparation of compound I comprising reacting a compound of formula II (R = H), in the presence of a base, with a compound of formula RX, wherein R is (un)substituted alkyl, (un)substituted alkenyl, and (un)substituted (hetero)aryl; X is from F, Cl, Br, I, CN, OTf and OR1; R1 is (un)substituted alkyl; Z is CN or a group that may be converted to a cyano group; so that an intermediate ether derivative, where R is as defined above, is formed from said reaction, which ether cyclizes to give a compound of formula I, where Z is not a cyano group, and conversion of the group Z in the compound of formula I to a cyano group to form racemic I (Z = CN), is claimed in this invention. The invention also provides ether compds., compds. of formula II and a process for preparation thereof. (S)-(+)-Citropram, i.e., (S)-(+)-I (Z = CN) was prepared by nucleophilic aromatic substitution of 2,5-dichloronitrobenzene with (S)-(-)-II (Z = CN; R = H) to give the corresponding benzylic Ph ether, that was converted to its HCl salt, and cyclized in the presence of potassium carbonate to give (S)-(+)-I.

L53 ANSWER 3 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1355587 CAPLUS
DOCUMENT NUMBER: 144:74891
TITLE: Novel stable polymorphic forms of tiagabine hydrochloride
INVENTOR(S): Natarajan, Muthukumaran; **Patel, Nileshkumar Sureshbhai**; Bhatt, Mehul Chandrakatbhai; Kilaru, Srinivasu; Thennati, Rajamannar
PATENT ASSIGNEE(S): **Sun Pharmaceutical Industries Limited, India**
SOURCE: PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005122698	A2	20051229	WO 2004-IN447	20041224

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

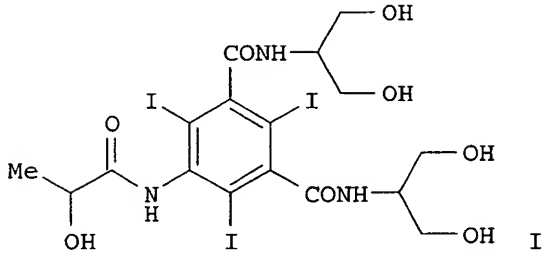
PRIORITY APPLN. INFO.: IN 2003-MU1210 A 20031224
AB Stable polymorphic forms III, IV and substantially amorphous forms of an anticonvulsant, tiagabine-HCl. Thus, a monoacetonitrile solvate of tiagabine-HCl was prepared by the reaction of the drug hydrochloride with MeCN. The solvate was characterized by x-ray diffraction.

L53 ANSWER 4 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:294515 CAPLUS
DOCUMENT NUMBER: 142:316575
TITLE: A process for the preparation of iopamidol in a pharmaceutically acceptable form

INVENTOR(S): Rajeev, Rehani; **Rajamannar, Thennati**; Patel, S. Kartik; Arun, Yadav; Mukesh, Vaghela
PATENT ASSIGNEE(S): **Sun Pharmaceutical Ind. Ltd., India**
SOURCE: Indian, 13 pp.
CODEN: INXXAP
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IN 186589	A	20011006	IN 1999-BO654	19990917
PRIORITY APPLN. INFO.:			IN 1999-BO654	19990917

OTHER SOURCE(S): CASREACT 142:316575; MARPAT 142:316575
GI



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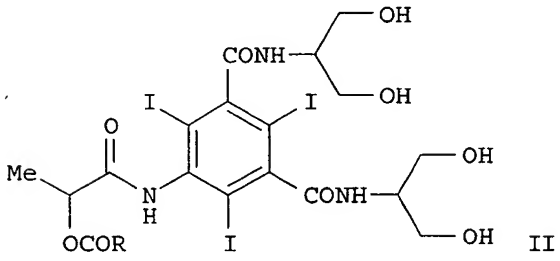

II

AB A facile process is described for the preparation of iopamidol I, a non-ionic X-ray contrast medium. The process comprises of treatment of an aqueous solution acetoxyiopamidol II [R = alkyl] with one or more of amine bases, and crystallization of iopamidol directly from the reaction mixture using alc. solvents to furnish a pharmaceutically acceptable purified iopamidol. Thus, reacting L-5-α-acetoxypropionylamino-2,4,6-triiodoisophthalic acid di(1,3-dihydroxyisopropylamide) with MeNH2 in H2O for 5 h at room temperature followed by addition of 2-propanol and heating to 90°C until complete crystallization, afforded 67% iopamidol (US Pharmacopoeial grade).

L53 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:207867 CAPLUS

DOCUMENT NUMBER: 142:246293
TITLE: A process for the preparation of substantially pure gabapentin
INVENTOR(S): **Rajamannar, Thennati**; Rajeev, Rehani
PATENT ASSIGNEE(S): **Sun Pharmaceutical Industries Ltd., India**
SOURCE: Indian, 16 pp.
CODEN: INXXAP
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IN 188097	A	20020817	IN 2000-MU62	20000120
IN 191332	A	20031122	IN 2001-MU863	20010910

PRIORITY APPLN. INFO.: IN 2000-MU62 A 20000120

AB A process for the preparation of substantially pure 1-(aminomethyl)-1-cyclohexameacetic acid (gabapentin) is described. The process comprises the steps of (a) treating crude gabapentin with an alkali such that the pH of the reaction mixture is at least 7.5, heating the reaction mixture to a temperature of at least about 80° and maintaining said temperature for at least 30 min, and extraction into an organic solvent followed by isolation of substantially pure gabapentin-lactam; and (b) hydrolyzing the substantially pure gabapentin-lactam with an acid to obtain gabapentin salt, neutralization of the salt with a base to precipitate gabapentin, and isolation of precipitated gabapentin.

L53 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:1079731 CAPLUS
DOCUMENT NUMBER: 142:56160
TITLE: process for purification of **citalopram** by hydrogenolysis halogenated isobenzofuran impurities
INVENTOR(S): Borase, Ashok Punju; **Patel, Nileshkumar Sureshbai**; Kilaru, Srinivasu; Thennati, Rajamannar
PATENT ASSIGNEE(S): **Sun Pharmaceuticals Industries Ltd., India**
SOURCE: Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1486492	A2	20041215	EP 2004-291424	20040608
EP 1486492	A3	20050223		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
US 2005004380	A1	20050106	US 2004-865139	20040608
US 7019153	B2	20060328		

PRIORITY APPLN. INFO.: IN 2003-MU602 A 20030610
OTHER SOURCE(S): MARPAT 142:56160
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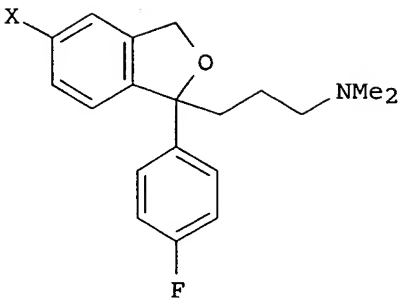

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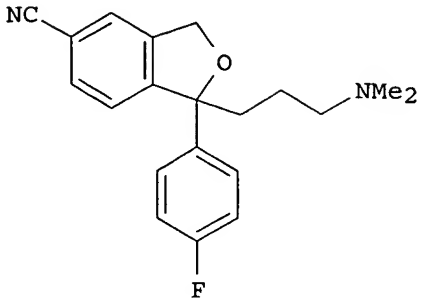

II

AB The present invention provides a process for decreasing the content of halogenated isobenzofuran impurities I (X = halo) in **citalopram** (II) by hydrogenolysis to I (X = H). Thus, 5 g crude **citalopram** base containing 4.84% of bromo impurity I (X = Br) is dissolved in 50 mL EtOAc, 0.1 g Pd/C and 0.1 g sodium hypophosphite added and the mixture refluxed for 2 h. Anal. showed that the bromo impurity I (X = Br) is absent.

L53 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:832438 CAPLUS
DOCUMENT NUMBER: 141:297645
TITLE: A process for the isolation of pure 1-(aminomethyl)cyclohexaneacetic acid from an aqueous solution of its acid addition salt by neutralization with base
INVENTOR(S): Gurunath, Gaonkar Subhash; **Rajamannar, Thennati**; Shrivastava, Ratnesh
PATENT ASSIGNEE(S): **Sun Pharmaceutical Industries Ltd., India**
SOURCE: Indian, 10 pp.
CODEN: INXXAP
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IN 186285	A	20010728	IN 2000-MU76	20000124

PRIORITY APPLN. INFO.: IN 2000-MU76 20000124

AB A process is described for the isolation of pure 1-(aminomethyl)cyclohexaneacetic acid (i.e., gabapentin) from an aqueous solution containing acid addition salt of 1-(aminomethyl)cyclohexaneacetic acid [e.g., 1-(aminomethyl)cyclohexaneacetic acid hydrochloride] by treatment with a base (e.g., sodium hydroxide) to the isoelec. point. The process yields pure 1-(aminomethyl)cyclohexaneacetic acid directly from the aqueous solution containing its acid addition salt, which salt is generated during the synthesis of 1-(aminomethyl)cyclohexaneacetic acid by the acid hydrolysis of its corresponding lactam.

L53 ANSWER 8 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:825284 CAPLUS
DOCUMENT NUMBER: 141:295724
TITLE: A process for the synthesis of 1-(2-nitroaryl)-2-arylethanes and their substituted derivatives as key intermediates for the production of pharmaceutically

CODEN: INXXAP
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IN 182116	A	19990102	IN 1996-BO362	19960712

PRIORITY APPLN. INFO.: IN 1996-BO362 19960712
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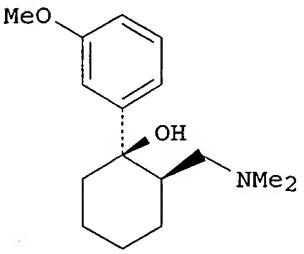

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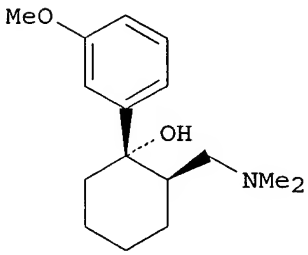

II

AB A process is described for the recovery of tramadol in the form of cis-tramadol hydrochloride, an analgesic drug I.HCl (no biol. data), from trans-tramadol hydrochloride II.HCl, or from a mixture of the diastereomeric cis- and trans-tramadols. The said process comprises isomerization of trans/cis, trans-tramadols under solvolytic conditions by catalysis with an appropriate acid resulting in enrichment of the cis-tramadol component which is then isolated as a pure isomer by crystallization This process when carried out in an iterative manner enables the recovery as cis-tramadol, in asymptotically quant. amts., from trans/cis, trans-tramadols.

L53 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:410231 CAPLUS
DOCUMENT NUMBER: 140:375168
TITLE: A process for the preparation of 1-(2,3-epoxypropyl)-5-nitroimidazoles via condensation of 5-nitroimidazoles and epichlorohydrin
INVENTOR(S): Rao, C. Trinadha; **Rajamannar, T.**; Acharyulu, P. V. R.; Rehani, R.; Desouza, N. J.
PATENT ASSIGNEE(S): **Sun Pharmaceutical Industries Ltd., India**
SOURCE: Indian, 26 pp.
CODEN: INXXAP
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IN 181460	A	19980620	IN 1996-BO597	19961210

PRIORITY APPLN. INFO.: IN 1996-BO597 19961210
OTHER SOURCE(S): CASREACT 140:375168; MARPAT 140:375168
GI

active compounds
INVENTOR(S): **Rajamannar, T.**; De Souza, N. J.
PATENT ASSIGNEE(S): **Sun Pharmaceutical Industries Ltd., India**
SOURCE: Indian, 27 pp.
CODEN: INXXAP
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IN 181826	A	19981003	IN 1995-BO491	19951121
PRIORITY APPLN. INFO.:			IN 1995-BO491	19951121

OTHER SOURCE(S): CASREACT 141:295724; MARPAT 141:295724
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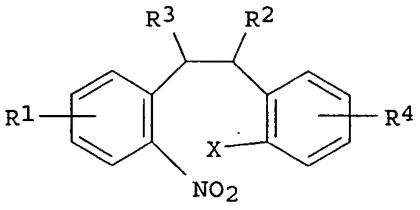

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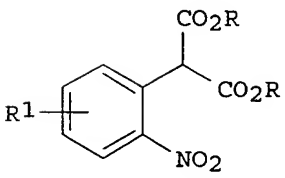

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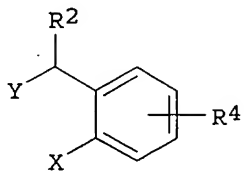


III

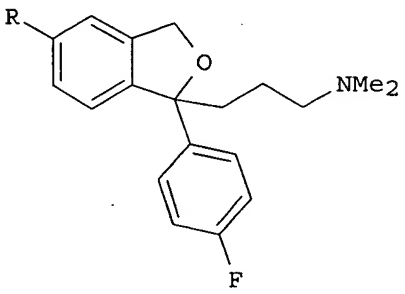
AB A new process for the preparation of substituted 1,2-diarylethane derivs. I [X = H, halogens such as Cl, Br and I, and NO2; R1, R4 = H, usual aromatic substituent such as Cl, CH3, OCH3, CF3, NH2 and nitrogen heterocyclic residues; R2 = H, alkyl, (un)substituted aryl; R3 = H, CO2R (wherein R = H, alkyl)] which are key intermediates for the preparation of the well known tricyclic antidepressant drugs, such as clomipramine, imipramine, desipramine, lofepramine and trimipramine, is disclosed. The compds. I are produced by treating the compds. II [R1 is as defined above; R = alkyl] with compound III [R2, R4, X are as defined above; Y = a leaving group such as halo, OMs, OTs] followed by the work-up procedure. Twelve compds. I [R1 = 4-Cl; R2, R4 = H; R3 = CO2Me, CO2H, H] were prepared

L53 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:825283 CAPLUS
DOCUMENT NUMBER: 141:277348
TITLE: A process for the recovery of tramadol as cis-tramadol hydrochloride in asymptotically quantitative amounts from mixtures of diastereomers of tramadol
INVENTOR(S): **Rajamannar, T.**; Rao, Trinadha C.; Sebastian, Sonny; De Souza, N. J.
PATENT ASSIGNEE(S): **Sun Pharmaceutical Industries Ltd., India**
SOURCE: Indian, 22 pp.

WO 2003057132 C1 20040415
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003222435	A1	20030724	AU 2003-222435		20030107
US 2005043550	A1	20050224	US 2004-500532		20040719 <--
PRIORITY APPLN. INFO.:			IN 2002-MU10	A	20020107
			IN 2002-MU18	A	20020110
			IN 2002-MU847	A	20020930
			WO 2003-IN6	W	20030107

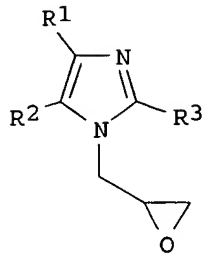
OTHER SOURCE(S): CASREACT 139:117333; MARPAT 139:117333
GI



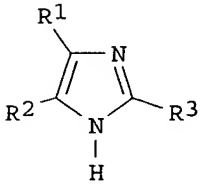
I

AB Title compound (I; R = cyano) (**citalopram**) was prepared by treatment of I (R = Cl, Br) with a cyanide source in the presence of I- in an amide, amine, or polyether solvent followed by treatment of the crude product containing 1-[3-(methylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-5-isobenzofurancarbonitrile and 5-carboxamido-1-(3-dimethylaminopropyl)-1-(4-fluorophenyl)phthalide impurities with a phosphorus oxyhalide, phosphorus oxide cyanide reversal agent, and purification using a solvent system comprising a hydrocarbon and alc., ester, ether, ketone, or mixture thereof. Thus, **citalopram** containing 4.7% amide and 0.72% desmethylcitalopram impurities was heated with $POCl_3$ in PhMe at 70° for 1 h. The mixture was poured into water and pH was adjusted to 2.0-2.5 with aqueous HCl. The PhMe layer was separated and the pH of the aqueous layer was adjusted to 9.0-9.5 with aqueous NH_3 followed by extraction with PhMe to give product containing 0.05% and 0.23% of the amide and desmethylcitalopram resp.

L53 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:699013 CAPLUS
DOCUMENT NUMBER: 135:226785
TITLE: Etherification and salification process for the industrial-scale manufacture of fluvoxamine maleate
INVENTOR(S): Chitturi, Rao; **Rajamannar, Thennati**; Jadav, Kanaksinh Jesingbhai; Shah, Hemant Ashvinbhai
PATENT ASSIGNEE(S): **Sun Pharmaceutical Industries Ltd., India**



I



II

AB A process for the preparation of 1-(2,3-epoxypropyl)-5-nitroimidazoles I [R1, R2 = NO2, H, halo; R3 = H, halo, alkyl] via the regioselective N-alkylation of 5-nitroimidazoles II by epichlorohydrin in the presence of AlCl3 was provided. For example, to a suspension of 2-methyl-5-nitroimidazole (250 g) in Et acetate (2.5 L) under N2 atmosphere was added dropwise anhydrous AlCl3 (328 g), while maintaining the reaction temperature between -10 to -5 °C. Epichlorohydrin (273 g) was then added to the mixture over a 4-h period and the reaction stirred for addnl. 6-h at -10 to -5 °C. After aqueous work-up and treatment with NaOH, 1-(2,3-epoxypropyl)-2-methyl-5-nitroimidazole was obtained in 75% yield. Of note, the use of a Lewis acid instead of a base, as in the prior art, afforded exclusive formation of the 5-nitroimidazole derivative

L53 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:551309 CAPLUS
DOCUMENT NUMBER: 139:117333
TITLE: Process for the preparation of 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-5-isobenzofurancarbonitrile via cyanation of the corresponding chloride or bromide precursors.
INVENTOR(S): Thennati, Rajamannar; Kilaru, Srinivasu; Chinnapillai, Rajendran; **Patel, Nileshkumar Sureshbhai**
PATENT ASSIGNEE(S): **Sun Pharmaceutical Industries Limited, India**
SOURCE: PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003057132	A2	20030717	WO 2003-IN6	20030107
WO 2003057132	A3	20040226		

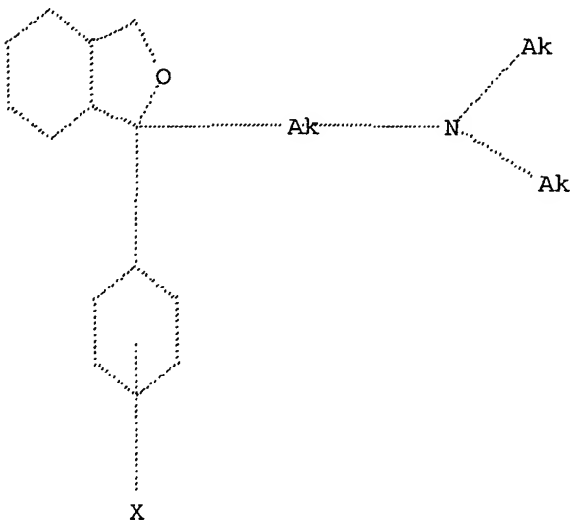
SOURCE: Patentschrift (Switz.), 6 pp.
CODEN: SWXXAS
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CH 691124	A	20010430	CH 2000-2194	20001111
IN 186677	A	20011020	IN 1999-BO796	19991112
US 6433225	B1	20020813	US 2000-696613	20001025
IT 1319242	B1	20030926	IT 2000-MI2324	20001026
BE 1012819	A6	20010306	BE 2000-717	20001110

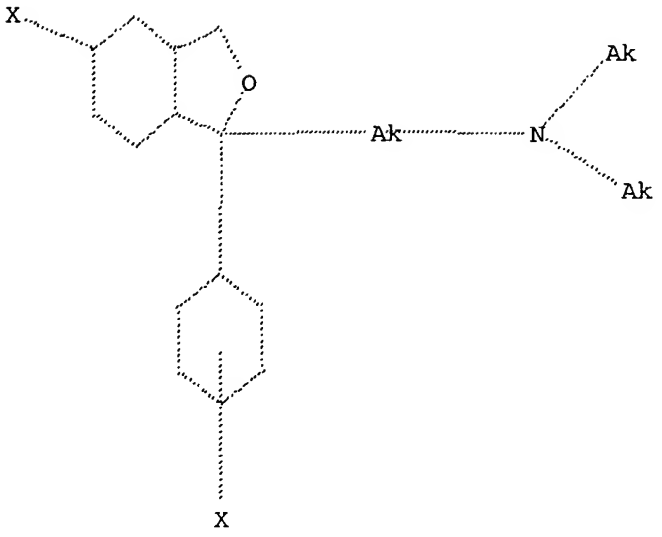
PRIORITY APPLN. INFO.: IN 1999-BO796 A 19991112
OTHER SOURCE(S): CASREACT 135:226785

AB Fluvoxamine maleate is prepared on an industrial scale by the etherification 5-methoxy-4'-trifluoromethylvalerophenone oxime with 2-chloroethylamine hydrochloride in the presence of bases (e.g., potassium hydroxide) and polyether catalysts (e.g., polyethylene glycol) yielding fluvoxamine which is then salified with maleic acid.

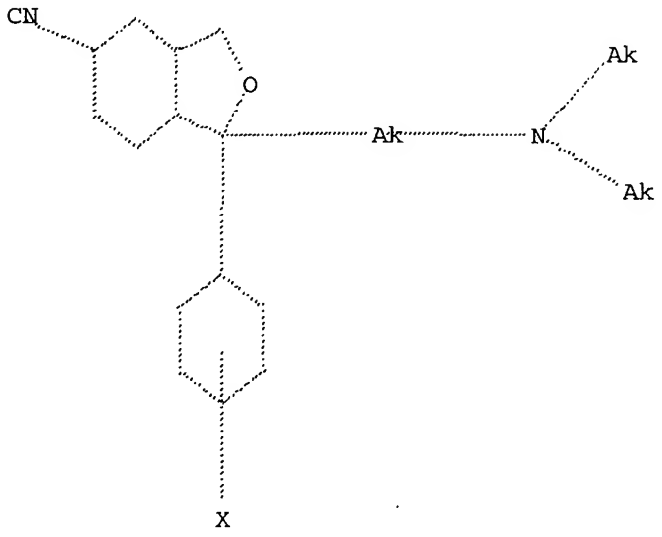
=> d que l45
L1 1 SEA FILE=CAPLUS ABB=ON PLU=ON US2004-500532/AP
L19 STR



Structure attributes must be viewed using STN Express query preparation.
L21 385 SEA FILE=REGISTRY SSS FUL L19
L36 STR



Structure attributes must be viewed using STN Express query preparation.
L37 STR



Structure attributes must be viewed using STN Express query preparation.

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L41	180	SEA FILE=REGISTRY SUB=L21 SSS FUL L37
L42	115	SEA FILE=CAPLUS ABB=ON PLU=ON L41 (L) PREP+ALL/RL
L43	26	SEA FILE=CAPLUS ABB=ON PLU=ON L39 (L) RACT+ALL/RL
L44	25	SEA FILE=CAPLUS ABB=ON PLU=ON L42 AND L43
L45	25	SEA FILE=CAPLUS ABB=ON PLU=ON (L44 OR L1)

=> d ibib abs hitstr l45 tot

L45 ANSWER 1 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:213262 CAPLUS
DOCUMENT NUMBER: 144:292567
TITLE: Process for preparation of escitalopram
INVENTOR(S): Pulla Reddy, Muddasani; Sambasiva Rao, Talasila; Venkaiah Chowdary, Nannapaneni
PATENT ASSIGNEE(S): Natco Pharma Limited, India
SOURCE: PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006025071	A1	20060309	WO 2005-IN282	20050823

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: IN 2004-CH885 A 20040902

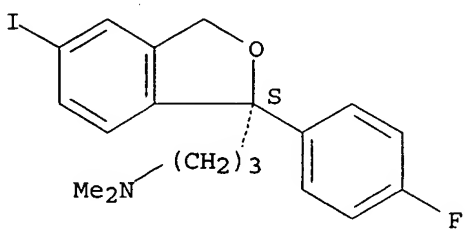
AB The present invention relates to an improved process for the preparation of escitalopram which consists of a sequential double Grignard reaction on 5-iodophthalide to get the dihydroxy compound, its resolution using a chiral acid, cyclization of resolved compound, and cyanation of compound using DMF and CuCN. The present process utilizes the facile displacement of iodo group with cyano group in the final step of the preparation of escitalopram. Escitalopram is a widely used anti-depressant.

IT **878655-30-2P**
RL: IMF (Industrial manufacture); **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(intermediate; preparation of escitalopram)

RN 878655-30-2 CAPLUS

CN 1-Isobenzofuranpropanamine, 1-(4-fluorophenyl)-1,3-dihydro-5-iodo-N,N-dimethyl-, (1S)- (9CI) (CA INDEX NAME)

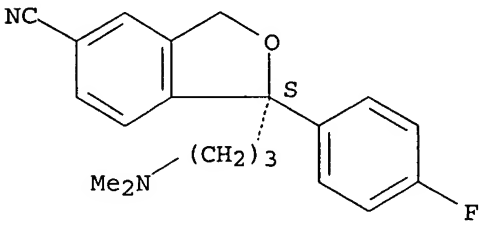
Absolute stereochemistry.



IT **128196-01-0P**, Escitalopram **219861-08-2P**
RL: **IMF (Industrial manufacture)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**

(preparation of escitalopram)
RN 128196-01-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

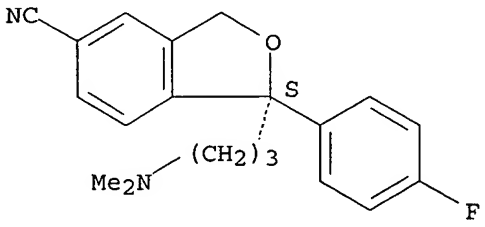


RN 219861-08-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

CM 1

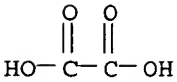
CRN 128196-01-0
CMF C20 H21 F N2 O

Absolute stereochemistry. Rotation (+).



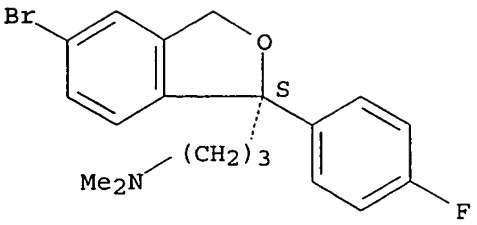
CM 2

CRN 144-62-7
CMF C2 H2 O4



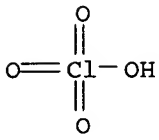
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:472143 CAPLUS
DOCUMENT NUMBER: 143:26491
TITLE: A process for the preparation of high purity escitalopram

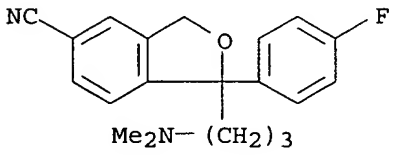


CM 2

CRN 7601-90-3
CMF Cl H O4



IT **59729-33-8P**, Citalopram **219861-08-2P**, Escitalopram oxalate
RL: **SPN (Synthetic preparation)**; **PREP (Preparation)**
(preparation of high purity escitalopram)
RN 59729-33-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)

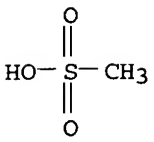


RN 219861-08-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 128196-01-0
CMF C20 H21 F N2 O

Absolute stereochemistry. Rotation (+).

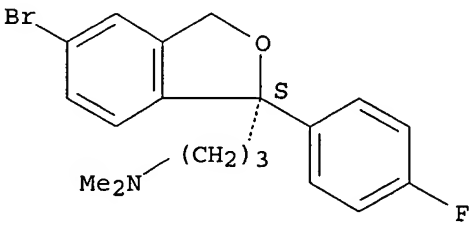


RN 852705-14-7 CAPLUS
CN Methanesulfonic acid, trifluoro-, compd. with (1S)-5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-1-isobenzofuranpropanamine (1:1) (9CI) (CA INDEX NAME)

CM 1

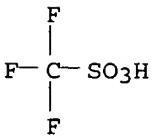
CRN 488148-14-7
CMF C19 H21 Br F N O

Absolute stereochemistry. Rotation (+).



CM 2

CRN 1493-13-6
CMF C H F3 O3 S



RN 852705-15-8 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, (1S)-, perchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 488148-14-7
CMF C19 H21 Br F N O

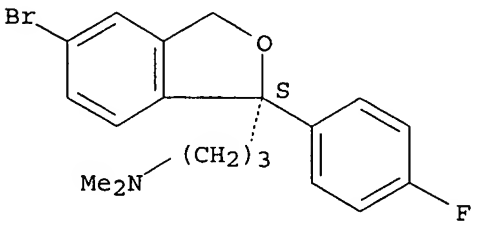
Absolute stereochemistry. Rotation (+).

CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, (1S)-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

CM 1

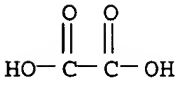
CRN 488148-14-7
CMF C19 H21 Br F N O

Absolute stereochemistry. Rotation (+).



CM 2

CRN 144-62-7
CMF C2 H2 O4

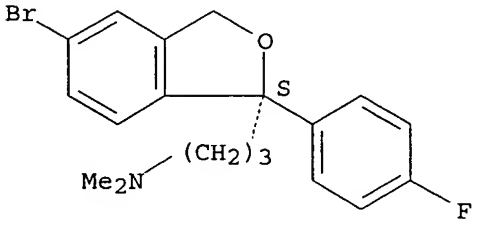


RN 852705-13-6 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, (1S)-, methanesulfonate (9CI) (CA INDEX NAME)

CM 1

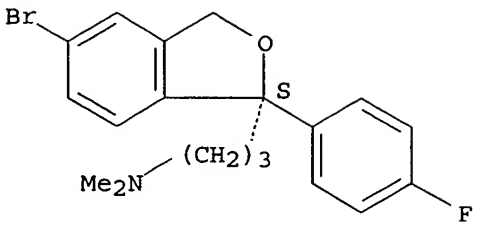
CRN 488148-14-7
CMF C19 H21 Br F N O

Absolute stereochemistry. Rotation (+).



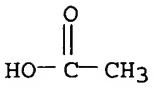
CM 2

CRN 75-75-2
CMF C H4 O3 S



CM 2

CRN 64-19-7
CMF C2 H4 O2

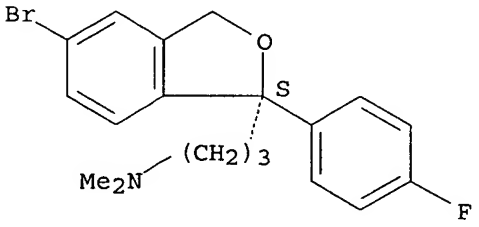


RN 852705-11-4 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, (1S)-, benzoate (9CI) (CA INDEX NAME)

CM 1

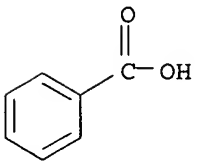
CRN 488148-14-7
CMF C19 H21 Br F N O

Absolute stereochemistry. Rotation (+).



CM 2

CRN 65-85-0
CMF C7 H6 O2

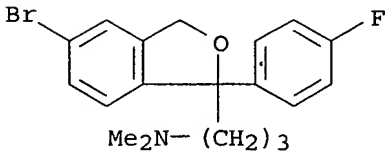


RN 852705-12-5 CAPLUS

CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

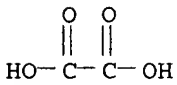
CM 1

CRN 64169-39-7
CMF C19 H21 Br F N O



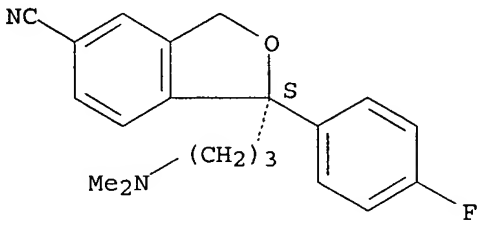
CM 2

CRN 144-62-7
CMF C2 H2 O4



RN 128196-01-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



RN 852705-10-3 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, (1S)-, acetate (9CI) (CA INDEX NAME)

CM 1

CRN 488148-14-7
CMF C19 H21 Br F N O

Absolute stereochemistry. Rotation (+).

INVENTOR(S): Pullareddy, Muddasani; Sambasiva Rao, Talasila; Srinivasa Rao, Nekkanti; Venkaiah Chowdary, Nannapaneni
PATENT ASSIGNEE(S): Natco Pharma Limited, India
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005049596	A1	20050602	WO 2003-IN363	20031120
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003282383	A1	20050608	AU 2003-282383	20031120
PRIORITY APPLN. INFO.:			WO 2003-IN363 A	20031120

OTHER SOURCE(S): CASREACT 143:26491
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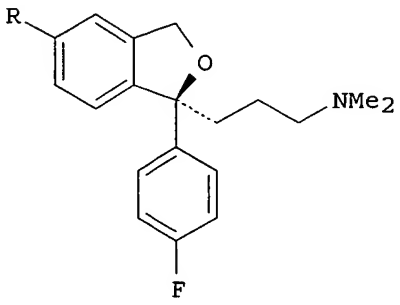
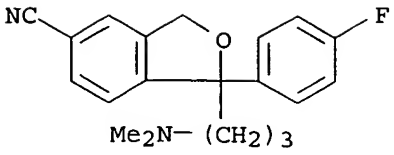


I

AB The present invention discloses an improved process for the preparation of high purity escitalopram base (I, R = CN) by reacting the acid addition salt of I (R = Br) with copper(I) cyanide and with or without copper(I) iodide in DMF medium at 145-150 °C. Cyanation of the acid addition salt is superior in yield and quality over the parent base compound I (R = Br). The process is compatible to scale up operations thereby making the process com. viable for escitalopram oxalate. Escitalopram oxalate is an antidepressant available in the market.

IT **64372-43-6P 128196-01-0P**, Escitalopram
852705-10-3P 852705-11-4P 852705-12-5P
852705-13-6P 852705-14-7P 852705-15-8P
RL: **RCT (Reactant)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**; **RACT (Reactant or reagent)**
(preparation of high purity escitalopram)

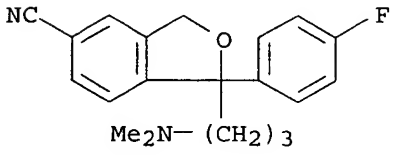
RN 64372-43-6 CAPLUS



RN 207559-01-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

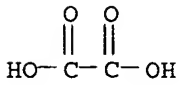
CM 1

CRN 59729-33-8
CMF C20 H21 F N2 O

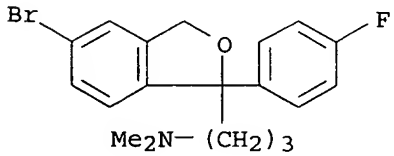


CM 2

CRN 144-62-7
CMF C2 H2 O4



IT **64169-39-7**
RL: **RCT (Reactant)**; REM (Removal or disposal); PROC (Process); **RACT (Reactant or reagent)**
(process for purification of citalopram by hydrogenolysis halogenated impurities)
RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)

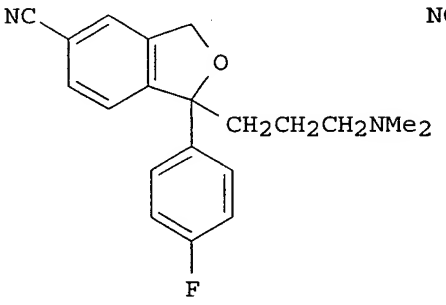


L45 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:691476 CAPLUS
DOCUMENT NUMBER: 141:207048
TITLE: Preparation of pure citalopram

INVENTOR(S): Kaushik, Vipin Kumar; Rao, Divvela Venkata Naga Srinivasa; Handa, Vijay Kumar; Sivakumaran, Meenakshisunderam
PATENT ASSIGNEE(S): Aurobindo Pharma Ltd., India
SOURCE: U.S., 3 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6781003	B1	20040824	US 2003-456135	20030609
PRIORITY APPLN. INFO.:			US 2003-456135	20030609

OTHER SOURCE(S): CASREACT 141:207048
GI



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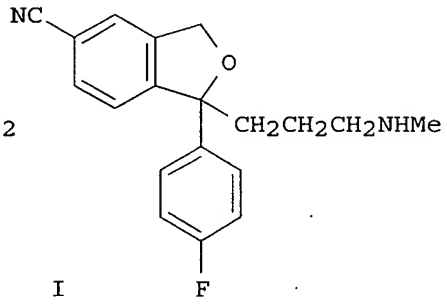


II

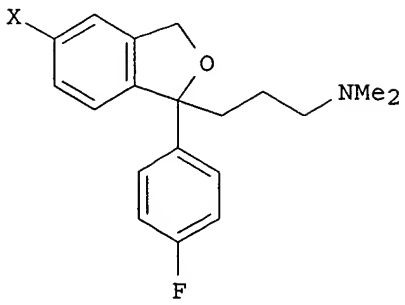
AB The present invention relates to an industrially advantageous method for the purification of citalopram (I) wherein desmethyl citalopram (II), present in crude citalopram as an impurity, is methylated to produce pure citalopram I. The resulting citalopram product I is isolated as the base or a pharmaceutically acceptable salt thereof. Thus, to crude citalopram (90 g, 0.28 mol) containing desmethyl citalopram (7 %, HPLC), formic acid (98%, 2.7 g) was added followed by aqueous formaldehyde(35%, 2.37 g). The reaction mass was heated at 85-95° for 30 min, cooled to 30°, and diluted with ethanol (900 mL), treated with oxalic acid dihydrate (41.94 g, 0.33 mol), and heated to reflux. The obtained solution was cooled to 20-25° and stirring was continued for 2 h at 20-25°, followed by collecting the product by filtration and recrystn. from ethanol to give highly pure 92 g crystalline citalopram oxalate having HPLC purity 99.7% wherein desmethyl citalopram (impurity) was not detected.

IT **59729-33-8P**, Citalopram
RL: **IMF (Industrial manufacture); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)**
(preparation of pure citalopram by N-methylation of crude citalopram containing
desmethyl citalopram with formaldehyde and formic acid)

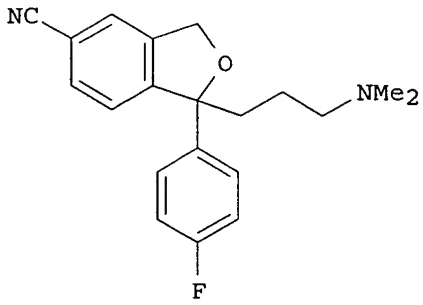
RN 59729-33-8 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)

US 7019153 B2 20060328
PRIORITY APPLN. INFO.: IN 2003-MU602 A 20030610
OTHER SOURCE(S): MARPAT 142:56160
GI



I

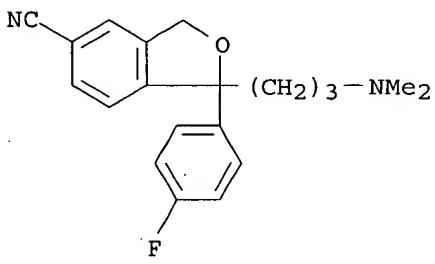


II

AB The present invention provides a process for decreasing the content of halogenated isobenzofuran impurities I (X = halo) in citalopram (II) by hydrogenolysis to I (X = H). Thus, 5 g crude citalopram base containing 4.84% of bromo impurity I (X = Br) is dissolved in 50 mL EtOAc, 0.1 g Pd/C and 0.1 g sodium hypophosphite added and the mixture refluxed for 2 h. Anal. showed that the bromo impurity I (X = Br) is absent.

IT **59729-32-7P**, Citalopram hydrobromide **59729-33-8P**, Citalopram **207559-01-1P**, Citalopram oxalate
RL: **PUR (Purification or recovery); PREP (Preparation)**
(process for purification of citalopram by hydrogenolysis halogenated impurities)

RN 59729-32-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)



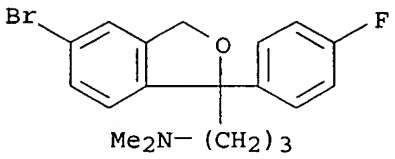
● HBr

RN 59729-33-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)

RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(process for purification of citalopram via washing with polybasic acid solns.)

RN 64169-39-7 CAPLUS

CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



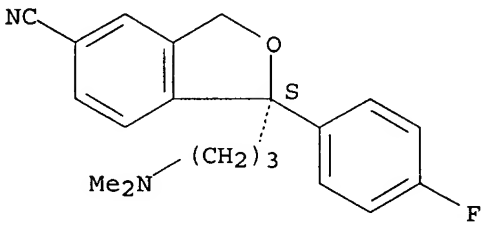
IT **128196-01-0P**, Escitalopram

RL: **SPN (Synthetic preparation)**; **PREP (Preparation)**
(process for purification of citalopram via washing with polybasic acid solns.)

RN 128196-01-0 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



L45 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1079731 CAPLUS

DOCUMENT NUMBER: 142:56160

TITLE: process for purification of citalopram by hydrogenolysis halogenated isobenzofuran impurities

INVENTOR(S): Borase, Ashok Punju; Patel, Nileshkumar Sureshbai; Kilaru, Srinivasu; Thennati, Rajamannar

PATENT ASSIGNEE(S): Sun Pharmaceuticals Industries Ltd., India

SOURCE: Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW

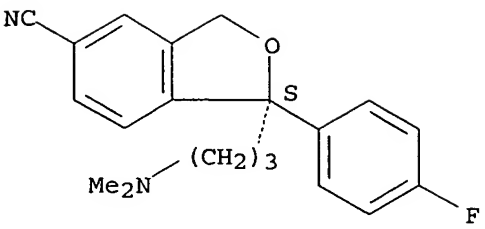
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

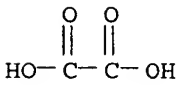
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1486492	A2	20041215	EP 2004-291424	20040608
EP 1486492	A3	20050223		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
US 2005004380	A1	20050106	US 2004-865139	20040608



CM 2

CRN 144-62-7
CMF C2 H2 O4



REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:120910 CAPLUS
DOCUMENT NUMBER: 142:197860
TITLE: Process for purification of citalopram via washing with polybasic acid solutions
INVENTOR(S): Uttarwar, Sunil Govindrao; Gawli, Bhagwan Narayan
PATENT ASSIGNEE(S): Meditab Specialities Pvt. Ltd., India; Wain, Christopher Paul
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005012278	A2	20050210	WO 2004-GB3209	20040723
WO 2005012278	A3	20050616		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
GB 2418916	A1	20060412	GB 2006-1023	20040723
PRIORITY APPLN. INFO.:			GB 2003-17475 A	20030725
			WO 2004-GB3209 W	20040723

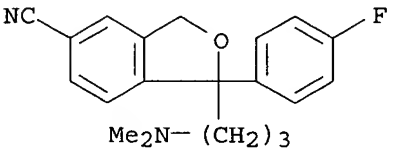
OTHER SOURCE(S): CASREACT 142:197860

AB A process for purification of racemic or optically active citalopram (I) comprises (i) providing crude I containing ≥1 I derivs. dissolved in a H2O-immiscible organic solvent, (ii) washing the crude mixture with ≥1 dilute aqueous solution of a polybasic acid, either in free form or as a partial alkali metal salt, so as to sep. I from impurities present in the crude mixture; and (iii) where required converting purified I free base to a pharmaceutically acceptable salt. Thus, 4-[4-(dimethylamino)-1-(4'-fluorophenyl)-1-hydroxybutyl]-3-hydroxymethylbenzonitrile was heated at 105° in aqueous H3PO4 followed by cooling, dilution with H2O, pH adjustment to 8-10 with aqueous NH3, and extraction with EtOAc. The EtOAc layer was washed with aqueous disodium edetate followed by drying over Na2SO4, treatment with decolorizing C, and filtration to give >99.85% pure citalopram hydrobromide.

IT **59729-33-8P**, Citalopram
RL: PAC (Pharmacological activity); **PUR (Purification or recovery)**; **SPN (Synthetic preparation)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)
(process for purification of citalopram)

RN 59729-33-8 CAPLUS

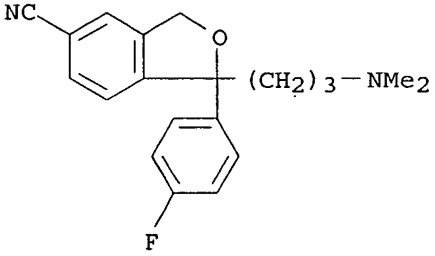
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



IT **59729-32-7P**, Citalopram hydrobromide
RL: PAC (Pharmacological activity); **PUR (Purification or recovery)**; **SPN (Synthetic preparation)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)
(process for purification of citalopram via washing with polybasic acid solns.)

RN 59729-32-7 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)



● HBr

IT **64169-39-7**

TITLE: A processes for preparation of escitalopram, useful as antidepressant

INVENTOR(S): Nannapaneni, Venkaiah Chowdary; Muddasani, Pulla Reddy; Talasila, Sambashiva Rao; Nekkanti, Srinivasa Rao; Podile, Khadgapathi

PATENT ASSIGNEE(S): Natco Pharma Limited, India

SOURCE: PCT Int. Appl., 30 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

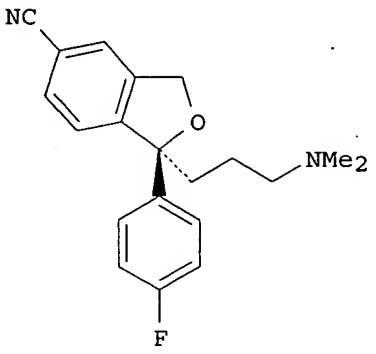
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

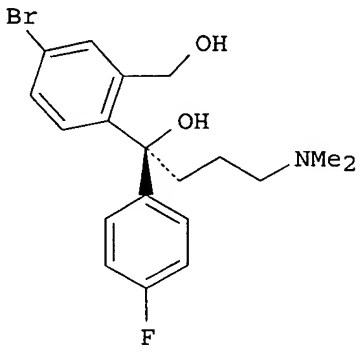
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004065375	A1	20040805	WO 2003-IN220	20030617
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003242990	A1	20040813	AU 2003-242990	20030617
PRIORITY APPLN. INFO.:			IN 2003-MA52 A	20030117
			WO 2003-IN220 W	20030617

OTHER SOURCE(S): CASREACT 141:157024

GI

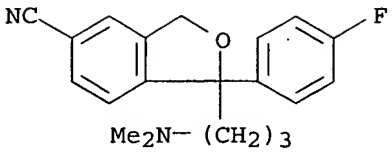


I

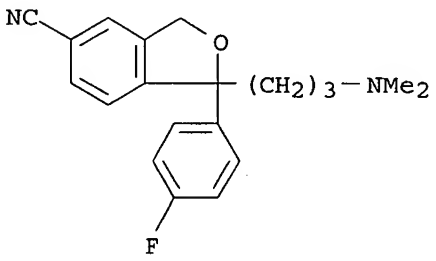


II

AB The present invention relates to an improved process for the preparation of escitalopram (I) which consist of a sequential double Grignard reaction on 5-bromophthalide, isolation of di-magnesium salt, neutralization of di-magnesium salt, resolution of dihydroxy compound of the formula II, cyclization, and cyanation. The proposed process utilizes the insol. property of di-magnesium salt in a mixture of THF and a non-polar organic solvent, and separates it from impurities by simple filtration thereby making the isolation and purification process simple. Advantages of the proposed process include (a) high yield preparation of escitalopram (>25%), (b) escitalopram can be prepared in a simple and easy to adopt manner without involving any purification steps, (c) the process produces pure (>98%)

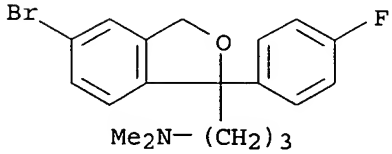


IT **59729-32-7P**, Citalopram Hydrobromide
RL: **IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)**
(preparation of pure citalopram by N-methylation of crude citalopram containing
desmethyl citalopram with formaldehyde and formic acid)
RN 59729-32-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)



● HBr

IT **64169-39-7**, 5-Bromo-1-(3-dimethylaminopropyl)-1-(4-fluorophenyl)-1,3-dihydroisobenzofuran
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(reactant; preparation of pure citalopram by N-methylation of crude citalopram containing desmethyl citalopram with formaldehyde and formic acid)
RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:633919 CAPLUS
DOCUMENT NUMBER: 141:157024

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:331827 CAPLUS
DOCUMENT NUMBER: 140:357194
TITLE: Process for the manufacture of citalopram hydrobromide from 5-bromophthalide
INVENTOR(S): Chodankar, Nandkumar; Bhobe, Ajit; Oak, G. M.; Eappan, Philip
PATENT ASSIGNEE(S): Sekhsaria Chemicals Limited, India
SOURCE: U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

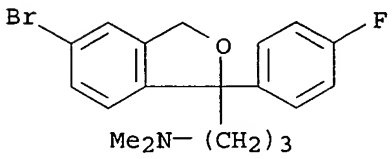
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004077870	A1	20040422	US 2002-277451	20021022
US 6812355	B2	20041102		
PRIORITY APPLN. INFO.:			US 2002-277451	20021022

OTHER SOURCE(S): CASREACT 140:357194; MARPAT 140:357194

AB Disclosed is a process for the preparation of 1-(4-fluorophenyl)-1-(3-dimethylamino-propyl)-5-phthalanecarbonitrile (citalopram) (known antidepressant) or a pharmaceutically acceptable salt thereof, comprising performing two successive Grignard reactions on 5-bromophthalide using p-fluorobromobenzene and then N,N-dimethylaminopropylmagnesium chloride, wherein the 5-bromophthalide is reacted with the first Grignard reagent in the presence of a Lewis acid, so reducing byproduct formation and improving yields.

IT **64169-39-7P**, 1-(4-Fluorophenyl)-1-(3-dimethylaminopropyl)-5-bromophthalane
RL: IMF (Industrial manufacture); **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(manufacture of citalopram hydrobromide from 5-bromophthalide by two successive Grignard reactions on 5-bromophthalide using p-fluorobromobenzene and then N,N-dimethylaminopropylmagnesium chloride)

RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



IT **59729-32-7P**, Citalopram hydrobromide **59729-33-8P** **207559-01-1P**, Citalopram oxalate **500733-84-6P**, Citalopram acetate
RL: **IMF (Industrial manufacture)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**
(manufacture of citalopram hydrobromide from 5-bromophthalide by two successive Grignard reactions on 5-bromophthalide using

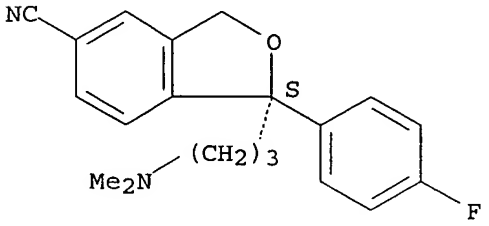
di-magnesium salt of intermediate compound was isolated, etc.

IT **128196-01-0P**, Escitalopram **128196-02-1P**, R-(-)-Citalopram
RL: **IMF (Industrial manufacture)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**
(processes for the preparation of escitalopram and its precursor)

RN 128196-01-0 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)- (9CI) (CA INDEX NAME)

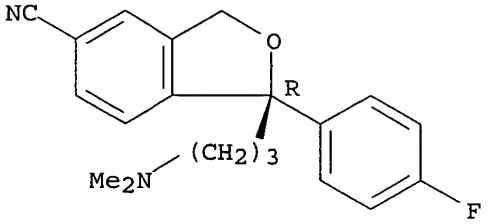
Absolute stereochemistry. Rotation (+).



RN 128196-02-1 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

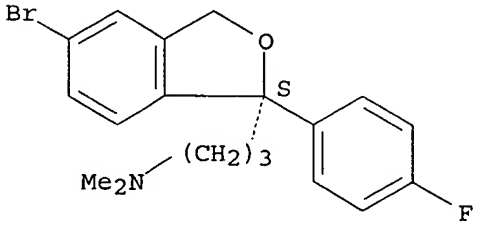


IT **488148-14-7P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(processes for the preparation of escitalopram and its precursor)

RN 488148-14-7 CAPLUS

CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, (1S)- (9CI) (CA INDEX NAME)

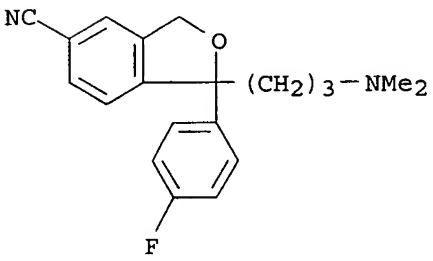
Absolute stereochemistry. Rotation (+).



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS

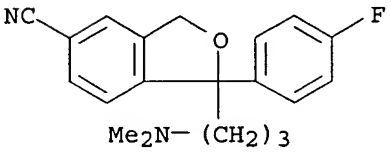
p-fluorobromobenzene and then N,N-dimethylaminopropylmagnesium chloride)

RN 59729-32-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)



● HBr

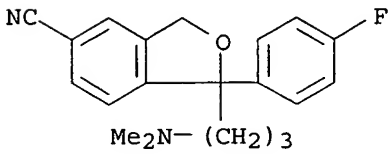
RN 59729-33-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



RN 207559-01-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

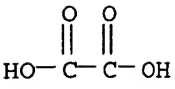
CM 1

CRN 59729-33-8
CMF C20 H21 F N2 O



CM 2

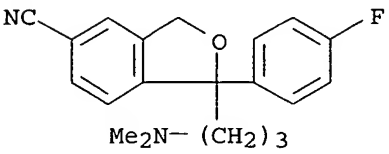
CRN 144-62-7
CMF C2 H2 O4



RN 500733-84-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monoacetate (9CI) (CA INDEX NAME)

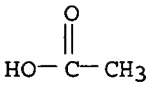
CM 1

CRN 59729-33-8
CMF C20 H21 F N2 O



CM 2

CRN 64-19-7
CMF C2 H4 O2

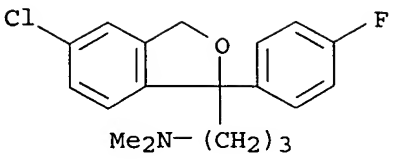


REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:101152 CAPLUS
DOCUMENT NUMBER: 140:145992
TITLE: Process for the preparation of 1-(3-dimethylaminopropyl)-1-(4-fluorophenyl)-1,3-dihydroisobenzofuran-5-carbonitrile
INVENTOR(S): Hilden, Leif; Rummakko, Petteri; Grumann, Arne; Pietikaeinen, Pekka
PATENT ASSIGNEE(S): Orion Corporation Fermion, Finland
SOURCE: PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004011450	A1	20040205	WO 2003-FI557	20030710

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,



REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:837069 CAPLUS
DOCUMENT NUMBER: 139:337880
TITLE: Preparation of escitalopram via the chiral enriched diol monoesters of (4-bromo-2-(hydroxymethyl)phenyl)-(4-fluorophenyl)methanol
INVENTOR(S): Tse, Hoi Lun Allan
PATENT ASSIGNEE(S): Torcan Chemical Ltd., Can.
SOURCE: PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003087081	A1	20031023	WO 2003-CA522	20030408
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2381341	AA	20031009	CA 2002-2381341	20020409
				20030408
AU 2003218575	A1	20031027	AU 2003-218575	20030408
EP 1495013	A1	20050112	EP 2003-711761	20030408
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2006009515	A1	20060112	US 2005-510890	20050311

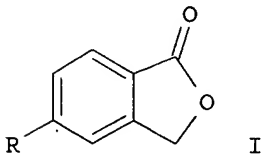
PRIORITY APPLN. INFO.:			
CA 2002-2381341	A	20020409	
WO 2003-CA522	W	20030408	

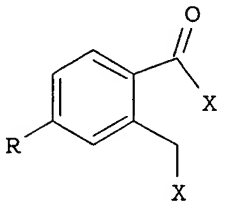
OTHER SOURCE(S): CASREACT 139:337880
GI

LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003244676	A1	20040216	AU 2003-244676	20030710
US 2005209467	A1	20050922	US 2005-45087	20050131
PRIORITY APPLN. INFO.:			FI 2002-1421	A 20020730
			US 2002-419150P	P 20021018
			WO 2003-FI557	W 20030710

OTHER SOURCE(S): CASREACT 140:145992; MARPAT 140:145992
GI


I

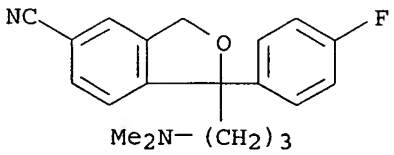

II

AB The present invention is directed to novel processes for the preparation of citalopram comprising halogenation of a phthalides I (wherein R is a suitable group to be changed to CN) to afford an acid halides II (X is halogen) and thereafter obtaining citalopram through two successive reactions with suitable organometallic halides or organoboranes or by a reaction with organometallic 4-fluorophenylhalide or 4-fluorophenylborane followed by reduction and alkylation, and an exchange of R to cyano to afford citalopram. The order of the reactions can be varied depending e.g. on the starting compound used.

IT **59729-33-8P**, Citalopram
RL: **IMF (Industrial manufacture)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**
(preparation of citalopram)

RN 59729-33-8 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)

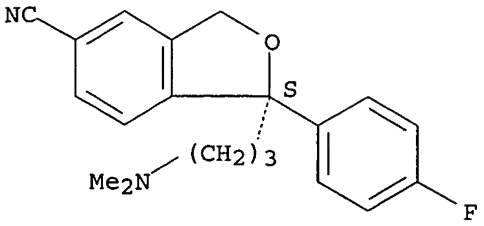


IT **64169-45-5P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(preparation of citalopram)

RN 64169-45-5 CAPLUS

CN 1-Isobenzofuranpropanamine, 5-chloro-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

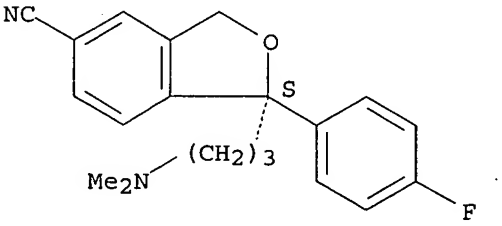


RN 219861-08-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

CM 1

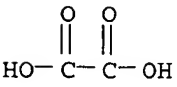
CRN 128196-01-0
CMF C20 H21 F N2 O

Absolute stereochemistry. Rotation (+).



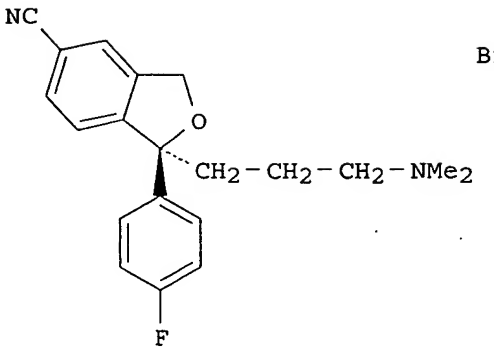
CM 2

CRN 144-62-7
CMF C2 H2 O4

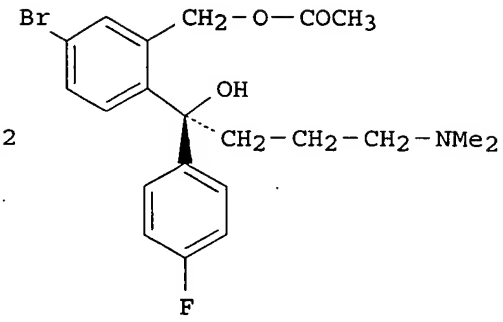


REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:590880 CAPLUS
DOCUMENT NUMBER: 139:133459
TITLE: Cyanation process for the preparation of citalopram and its extractive purification
INVENTOR(S): Coppi, Laura; Gasanz Guillen, Yolanda; Campon Pardo, Julio
PATENT ASSIGNEE(S): Esteve Quimica, S.A., Spain
SOURCE: U.S. Pat. Appl. Publ., 5 pp.



I



II

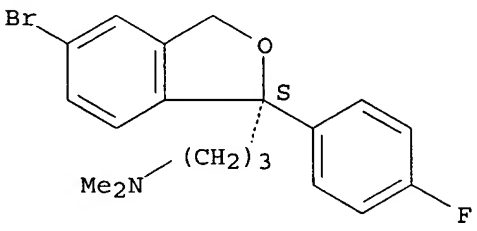
AB Preparation of escitalopram (I) via the chiral enriched monoacetate ester of (4-bromo-2-(hydroxymethyl)phenyl)-(4-fluorophenyl)methanol (II) was disclosed. For example, a racemic mixture of monoacetate ester II (13.52 g) and (+)-di-p-toluoyl tartaric acid (11.92 g) in acetone (135 mL) was heated at reflux until a pale brown solution was obtained. The solution was cooled, the acetone removed under vacuum and the resulting brown foam recrystd. from acetone-hexane (2:1) to afford the (+)-di-p-toluoyl tartaric acid salt of monoacetate ester II with a diastereomeric ratio of 97:3. Of note, the claimed (+)-di-p-toluoyl tartaric acid salt of monoacetate ester II was converted to escitalopram oxalate in 4-steps with [α]D = +10.1° (at 20°C, c 0.95 in MeOH).

IT **488148-14-7P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(intermediate; preparation of escitalopram via a chiral enriched diol monoester intermediate)

RN 488148-14-7 CAPLUS

CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



IT **128196-01-0P**, Escitalopram **219861-08-2P**, Escitalopram oxalate
RL: PAC (Pharmacological activity); **SPN (Synthetic preparation)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)
(target compound; preparation of escitalopram via a chiral enriched diol monoester intermediate)

RN 128196-01-0 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)- (9CI) (CA INDEX NAME)

CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003144534	A1	20030731	US 2003-351289	20030124
US 6635773	B2	20031021		
ES 2194597	A1	20031116	ES 2002-167	20020125
ES 2194597	B2	20040801		
CA 2474323	AA	20030731	CA 2003-2474323	20030124
WO 2003062218	A1	20030731	WO 2003-ES37	20030124
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1479673	A1	20041124	EP 2003-706634	20030124
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005522419	T2	20050728	JP 2003-562097	20030124
CN 1688565	A	20051026	CN 2003-802625	20030124
ZA 2004005441	A	20050708	ZA 2004-5441	20040708
NO 2004003568	A	20040825	NO 2004-3568	20040825

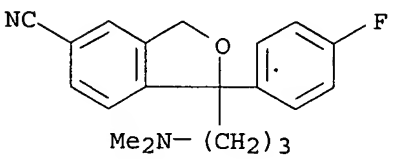
PRIORITY APPLN. INFO.:
ES 2002-167 A 20020125
WO 2003-ES37 W 20030124

AB Crude citalopram was prepared the cyanation of 1-[3-(dimethylamine)propyl]-1-(4-fluorophenyl)-1,3-dihydro-5-bromoisobenzofuran with copper cyanide and purified citalopram or one of its salts (e.g., citalopram hydrobromide) was obtained by the extractive purification of citalopram by selective extns. of citalopram or it salts of its impurities with organic solvents (e.g., toluene and heptane) and water under specific conditions of pH and temperature

IT **59729-33-8P**, Citalopram
RL: **PUR (Purification or recovery)**; RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)
(cyanation process for the preparation of citalopram and its extractive purification)

RN 59729-33-8 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)

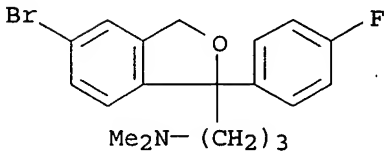


IT **64169-39-7**
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**

(cyanation process for the preparation of citalopram and its extractive purification)

RN 64169-39-7 CAPLUS

CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



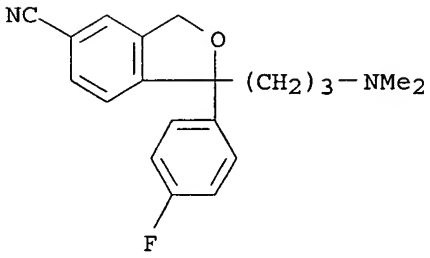
IT **59729-32-7P**, Citalopram hydrobromide

RL: **SPN (Synthetic preparation); PREP (Preparation)**

(cyanation process for the preparation of citalopram and its extractive purification)

RN 59729-32-7 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)



● HBr

L45 ANSWER 11 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:551309 CAPLUS

DOCUMENT NUMBER: 139:117333

TITLE: Process for the preparation of 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-5-isobenzofurancarbonitrile via cyanation of the corresponding chloride or bromide precursors.

INVENTOR(S): Thennati, Rajamannar; Kilaru, Srinivasu; Chinnapillai, Rajendran; Patel, Nileshkumar Sureshbhai

PATENT ASSIGNEE(S): Sun Pharmaceutical Industries Limited, India

SOURCE: PCT Int. Appl., 41 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 2003057132	A2	20030717	WO 2003-IN6		20030107
WO 2003057132	A3	20040226			
WO 2003057132	C1	20040415			

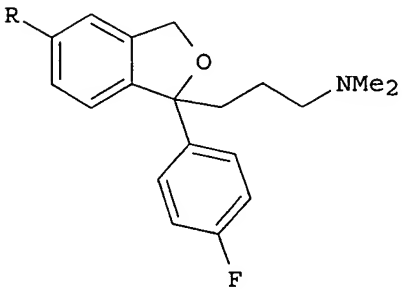
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003222435	A1	20030724	AU 2003-222435		20030107
US 2005043550	A1	20050224	US 2004-500532		20040719 <--
PRIORITY APPLN. INFO.:			IN 2002-MU10	A	20020107
			IN 2002-MU18	A	20020110
			IN 2002-MU847	A	20020930
			WO 2003-IN6	W	20030107

OTHER SOURCE(S): CASREACT 139:117333; MARPAT 139:117333

GI



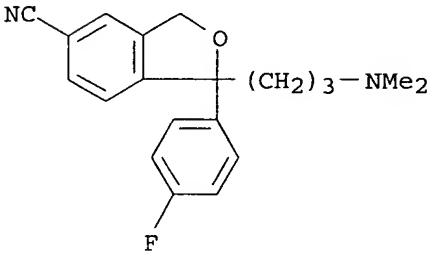
I

AB Title compound (I; R = cyano) (citalopram) was prepared by treatment of I (R = Cl, Br) with a cyanide source in the presence of I- in an amide, amine, or polyether solvent followed by treatment of the crude product containing 1-[3-(methylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-5-isobenzofurancarbonitrile and 5-carboxamido-1-(3-dimethylaminopropyl)-1-(4-fluorophenyl)phthalide impurities with a phosphorus oxyhalide, phosphorus oxide cyanide reversal agent, and purification using a solvent system comprising a hydrocarbon and alc., ester, ether, ketone, or mixture thereof. Thus, citalopram containing 4.7% amide and 0.72% desmethylcitalopram impurities was heated with POCl3 in PhMe at 70° for 1 h. The mixture was poured into water and pH was adjusted to 2.0-2.5 with aqueous HCl. The PhMe layer was separated and the pH of the aqueous layer was adjusted to 9.0-9.5 with aqueous NH3 followed by extraction with PhMe to give product containing 0.05% and 0.23% of the amide and desmethylcitalopram resp.

IT **59729-32-7P**, Citalopram hydrobromide **59729-33-8P**, 1-[3-(Dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-5-isobenzofurancarbonitrile
RL: **IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)**

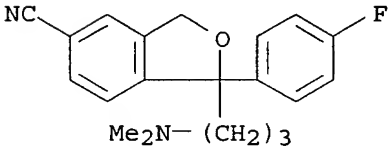
(process for the preparation of citalopram via cyanation of the corresponding chloride or bromide precursor)

RN 59729-32-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)



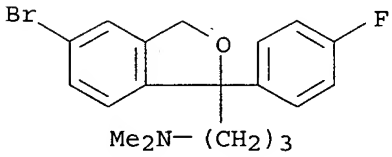
● HBr

RN 59729-33-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



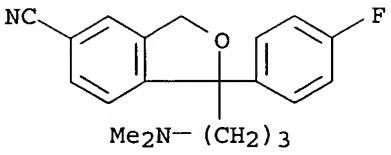
IT **64169-39-7**
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(process for the preparation of citalopram via cyanation of the corresponding chloride or bromide precursor)

RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



L45 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:282554 CAPLUS
DOCUMENT NUMBER: 138:305791
TITLE: Process for the preparation of citalopram, and intermediates and derivatives
INVENTOR(S): Malik, A. Aslam; Palandöken, Hasan; Stringer, Joy A.; Huang, Dershing; Romero, Antonio; Dapremont, Olivier

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)

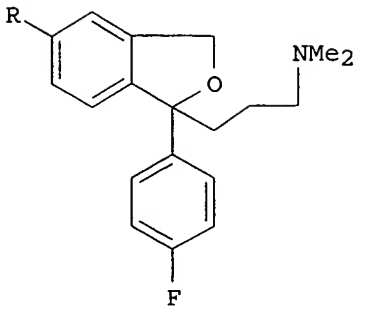


L45 ANSWER 23 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:31487 CAPLUS
DOCUMENT NUMBER: 134:102526
TITLE: Process for the synthesis of citalopram
INVENTOR(S): Bolzonella, Eva; Castellin, Andrea; Nicole, Andrea
PATENT ASSIGNEE(S): Vis Farmaceutici S.p.A., Italy
SOURCE: PCT Int. Appl., 21 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001002383	A2	20010111	WO 2000-EP6426	20000706
WO 2001002383	A3	20010503		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
IT 99MI1486	A1	20010108	IT 1999-MI1486	19990706
CA 2383963	AA	20020117	CA 2001-2383963	20010706
WO 2002004435	A1	20020117	WO 2001-DK481	20010706
W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
BR 2001006976	A	20020723	BR 2001-6976	20010706
NO 2002001118	A	20020424	NO 2002-1118	20020306
US 2002128497	A1	20020912	US 2002-96149	20020306
PRIORITY APPLN. INFO.:			IT 1999-MI1486 A	19990706
			WO 2000-EP6426 A	20000706
			WO 2001-DK481 W	20010706

AB A new process is described for the synthesis of citalopram characterized by the conversion of 1-(4'-fluorophenyl)1-3-(dimethylaminopropyl)-5-

GI



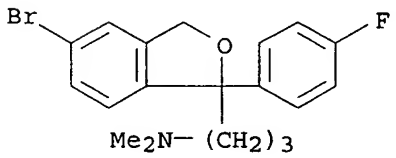
I

AB A method for the preparation of citalopram is presented, comprising the reaction of isobenzofuranpropanamine I, wherein R is Cl or Br, with a cyanide source in the presence of a nickel catalyst and isolation of the corresponding 5-cyano compound, i.e. citalopram.

IT **64169-39-7**, 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- **64169-45-5**, 1-Isobenzofuranpropanamine, 5-chloro-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(method for the preparation of citalopram by nickel-catalyzed cyanation of halo precursors)

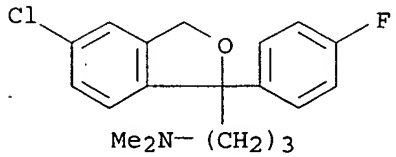
RN 64169-39-7 CAPLUS

CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



RN 64169-45-5 CAPLUS

CN 1-Isobenzofuranpropanamine, 5-chloro-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



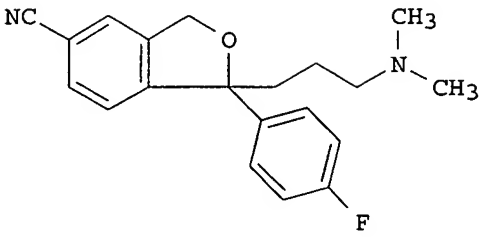
IT **59729-33-8P**, Citalopram
RL: **SPN (Synthetic preparation)**; **PREP (Preparation)**
(method for the preparation of citalopram by nickel-catalyzed cyanation of halo precursors)

RN 59729-33-8 CAPLUS

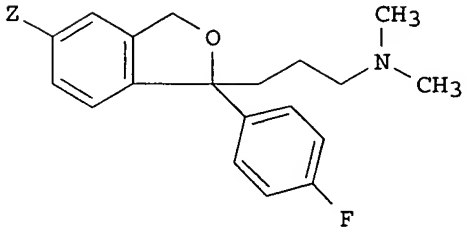
CH 2001-545 A 20010322

OTHER SOURCE(S): CASREACT 135:61224; MARPAT 135:61224

GI



I



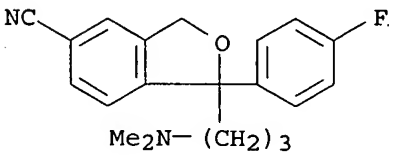
II

AB A process for the preparation and purification of citalopram (I) is presented in which a benzoisofuran derivative [II; Z = iodo, bromo, chloro, CF3(CF2)nSO2O; n = 0-8] is subjected to a cyanide-exchange reaction with a cyanide source (e.g., cuprous cyanide). The resultant crude citalopram is optionally subjected to some initial purification and subsequently treated with an amide or an amide-like group forming agent (e.g., acetic anhydride), the reaction mixture is then subjected to an acid/base wash and/or crystallization and recrystn. of citalopram in order to remove the amides formed from the crude citalopram mixture, and the resulting citalopram product is optionally further purified, worked up and isolated as the base or a pharmaceutically acceptable salt.

IT **59729-33-8P**, Citalopram
RL: **IMF (Industrial manufacture)**; **PUR (Purification or recovery)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**
(method for the preparation and purification of citalopram)

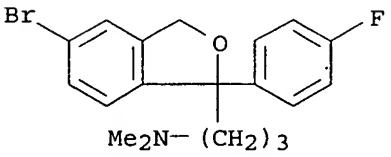
RN 59729-33-8 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)

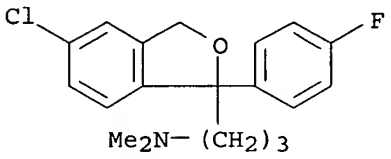


IT **64169-39-7 64169-45-5 260066-78-2**
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**

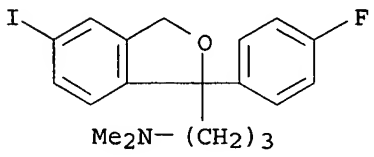
(method for the preparation of citalopram by the cyanidation of)
RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



RN 64169-45-5 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-chloro-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



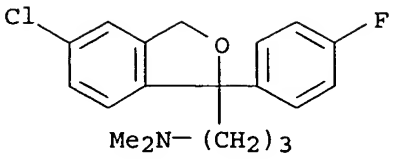
RN 260066-78-2 CAPLUS
CN 1-Isobenzofuranpropanamine, 1-(4-fluorophenyl)-1,3-dihydro-5-iodo-N,N-dimethyl- (9CI) (CA INDEX NAME)



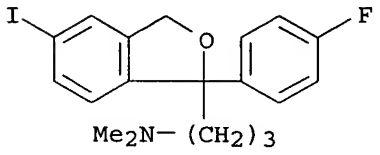
L45 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:386023 CAPLUS
DOCUMENT NUMBER: 134:353251
TITLE: Method for the preparation of citalopram by nickel-catalyzed cyanation of halo precursors
INVENTOR(S): Petersen, Hans; Rock, Michael Harold
PATENT ASSIGNEE(S): H Lundbeck A/S, Den.
SOURCE: Brit. UK Pat. Appl., 16 pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2354240 A1		20010321	GB 2001-1508	19991119
PRIORITY APPLN. INFO.:			DK 1999-921	19990625
			WO 1999-DK643	19991119

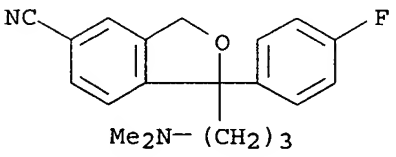
OTHER SOURCE(S): MARPAT 134:353251



RN 260066-78-2 CAPLUS
CN 1-Isobenzofuranpropanamine, 1-(4-fluorophenyl)-1,3-dihydro-5-iodo-N,N-dimethyl- (9CI) (CA INDEX NAME)



IT **59729-33-8P**, Citalopram
RL: **IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)**
(process for the preparation of high-purity citalopram by cyanidation with purification via thin-film distillation)
RN 59729-33-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



L45 ANSWER 21 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:472398 CAPLUS
DOCUMENT NUMBER: 135:61224
TITLE: Method for the preparation and purification of citalopram
INVENTOR(S): Villa, Marcos; Sbrogio, Federico; Dancer, Robert
PATENT ASSIGNEE(S): H. Lundbeck A/S, Den.
SOURCE: PCT Int. Appl., 12 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001045483	A2	20010628	WO 2001-DK147	20010307
WO 2001045483	A3	20011227		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,

LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW
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IN 193611		A	20040724	IN 2001-MA580		20010713
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BG 106219		A	20020830	BG 2001-106219		20011213
US 2002087012		A1	20020704	US 2001-35005		20011220
US 6855834		B2	20050215			
NZ 516299		A	20021220	NZ 2001-516299		20011220
HR 2002000005		A1	20030430	HR 2002-5		20020104
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PRIORITY APPLN. INFO.:				DK 2000-1943	A	20001228
				WO 2001-DK148	W	20010307
				NL 2001-1017534	A	20010308
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OTHER SOURCE(S): CASREACT 135:61225; MARPAT 135:61225

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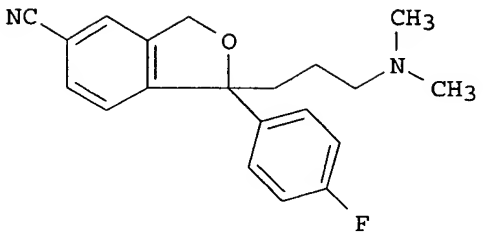

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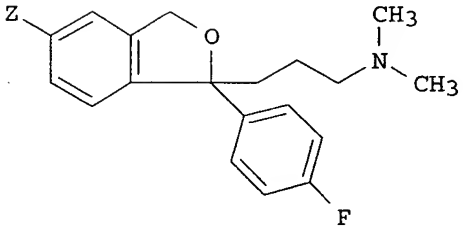
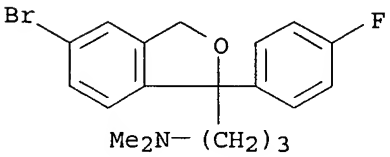


II

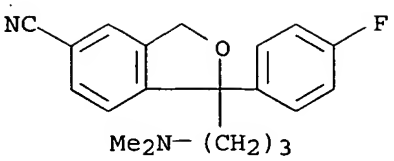
AB High-purity citalopram (I) is prepared on an industrial scale by: subjecting a citalopram precursor [II; Z = iodo, bromo, chloro, CF3(CF2)nSO2O; n = 0-8] (e.g., Z = Br) to a cyanide exchange reaction in which the group Z is exchanged with cyanide by reaction with a cyanide source (e.g., CuCN) in a solvent (e.g., sulfolane); the crude citalopram product is optionally subjected to some initial purification and the crude citalopram base is subsequently subjected to a thin- or falling-film distillation process.

IT **64169-39-7 64169-45-5 260066-78-2**
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(in a process for the preparation of high-purity citalopram by cyanidation with purification via thin-film distillation)

RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)

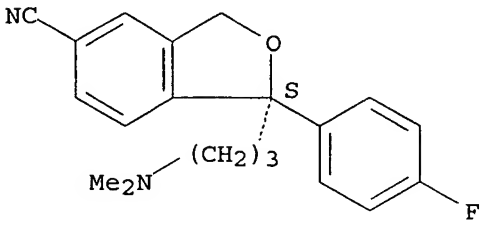


RN 64169-45-5 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-chloro-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



RN 128196-01-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



RN 207559-01-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

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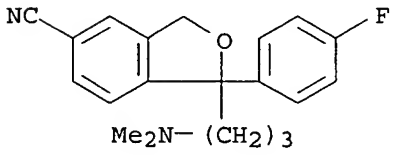
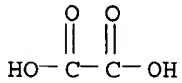
CRN 59729-33-8
CMF C20 H21 F N2 O



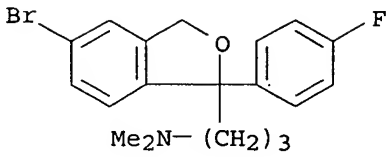
CM 2

CRN 144-62-7
CMF C2 H2 O4

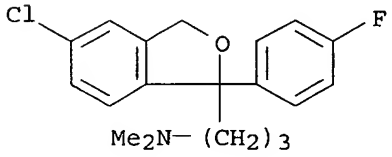


IT **64169-39-7**, 1-(4-Fluorophenyl)-1-(3-dimethylaminopropyl)-5-bromophthalane **64169-45-5**, 1-(4-Fluorophenyl)-1-(3-dimethylaminopropyl)-5-chlorophthalane
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(preparation of citalopram by nickel-catalyzed cyanation of halo precursors)
RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-

dimethyl- (9CI) (CA INDEX NAME)



RN 64169-45-5 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-chloro-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



L45 ANSWER 20 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:489362 CAPLUS
DOCUMENT NUMBER: 135:61225
TITLE: Process for the preparation of high-purity citalopram by cyanidation with purification via thin-film distillation
INVENTOR(S): Castellin, Andrea; Volpe, Giulio; Sbrogio, Federico
PATENT ASSIGNEE(S): H. Lundbeck A/s, Den.
SOURCE: PCT Int. Appl., 10 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001047877	A2	20010705	WO 2001-DK148	20010307
WO 2001047877	A3	20001227		
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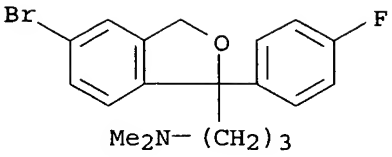

L45 ANSWER 19 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:592319 CAPLUS
Correction of: 2001:386023
DOCUMENT NUMBER: 135:137393
Correction of: 134:353251
TITLE: Method for the preparation of citalopram
INVENTOR(S): Petersen, Hans; Rock, Michael Harold
PATENT ASSIGNEE(S): H Lundbeck A/S, Den.
SOURCE: Brit. UK Pat. Appl., 15 pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2354240	A1	20010321	GB 2001-1508	19991119
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IT 99MI1579	A1	20010115	IT 1999-MI1579	19990715
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EP 1105382	A2	20010613	EP 1999-968206	19991119
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AT 213237	E	20020215	AT 1999-968206	19991119
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AT 9909040	A	20020515	AT 1999-9040	19991119
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OTHER SOURCE(S): CASREACT 135:137393; MARPAT 135:137393

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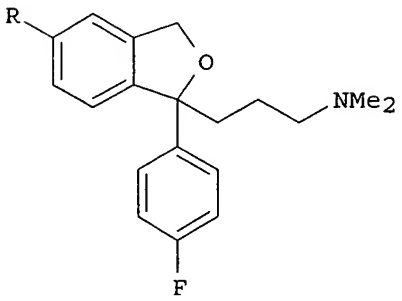

I

AB A method for preparing the antidepressant, citalopram [I; R = CN], by reacting an isobenzofuranpropanamine [I; R = Cl or Br] with a cyanide source in the presence of a nickel catalyst is presented. Citalopram is produced in high yield as a very pure product using this catalytic process. Thus, sequential addition of I (R = Cl) and NaCN to the Ni catalyst formed by reflux of NiCl2 with PPh3 in AcCN in the presence of a catalytic amount of Zn, followed by workup and treatment with oxalic acid, gave citalopram oxalate in 55% yield.

IT **59729-33-8P 128196-01-0P**, (S)-Citalopram
207559-01-1P, Citalopram oxalate
RL: **IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)**
(preparation of citalopram by nickel-catalyzed cyanation of halo precursors)

RN 59729-33-8 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)

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US 2002025982	A1	20020228	US 2001-930107	20010814
US 6426422	B2	20020730		
US 2002026062	A1	20020228	US 2001-930110	20010814
US 6509483	B2	20030121		
WO 2002016341	A1	20020228	WO 2001-DK541	20010814
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EP 1309581	A1	20030514	EP 2001-957785	20010814
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JP 2004506729	T2	20040304	JP 2002-521442	20010814
JP 2004506730	T2	20040304	JP 2002-521443	20010814
NZ 523853	A	20040730	NZ 2001-523853	20010814
NZ 523877	A	20040827	NZ 2001-523877	20010814
AT 281447	E	20041115	AT 2001-957785	20010814
AT 281448	E	20041115	AT 2001-957786	20010814
PT 1309581	T	20050331	PT 2001-957785	20010814
PT 1309582	T	20050331	PT 2001-957786	20010814
ES 2228920	T3	20050416	ES 2001-1957786	20010814
ES 2230347	T3	20050501	ES 2001-1957785	20010814
AU 2001100271	A4	20010913	AU 2001-100271	20010815
AU 2001100271	B4	20011129		
CZ 294746	B6	20050316	CZ 2001-2958	20010815
CZ 295863	B6	20051116	CZ 2001-2959	20010815
AU 2001100278	A4	20010913	AU 2001-100278	20010816
AU 2001100278	B4	20011129		
NL 1018775	C1	20011024	NL 2001-1018775	20010816
NL 1018776	C1	20011024	NL 2001-1018776	20010816
BE 1013443	A6	20020115	BE 2001-548	20010816

FR 2813077	A1	20020222	FR 2001-10855		20010816
FR 2813077	B1	20040820			
FR 2813078	A1	20020222	FR 2001-10857		20010816
FR 2813078	B1	20040402			
DE 10140028	A1	20020418	DE 2001-10140028		20010816
DE 10140029	A1	20020502	DE 2001-10140029		20010816
CN 1339435	A	20020313	CN 2001-133947		20010817
CN 1339436	A	20020313	CN 2001-133948		20010817
BR 2001004841	A	20020604	BR 2001-4841		20010817
ES 2170734	A1	20020801	ES 2001-1919		20010817
ES 2170735	A1	20020801	ES 2001-1920		20010817
CN 1515564	A	20040728	CN 2004-10001871		20010817
IN 194535	A	20041113	IN 2001-MA680		20010817
BE 1013444	A6	20020115	BE 2001-550		20010820
BR 2001005022	A	20020604	BR 2001-5022		20010824
HK 1047086	A1	20050422	HK 2002-106522		20020904
BG 107583	A	20040130	BG 2003-107583		20030224
BG 107584	A	20040130	BG 2003-107584		20030224
PRIORITY APPLN. INFO.:			DK 2000-1231	A	20000818
			WO 2001-DK541	W	20010814
			WO 2001-DK542	W	20010814

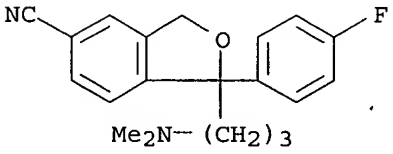
OTHER SOURCE(S): CASREACT 137:78853

AB Citalopram (I) was prepared by converting a 5-halo-1-(4-fluorophenyl)-1-(3-dimethylaminopropyl)-1,3-dihydroisobenzofuran to the 5-carboxylic acid derivative and converting the latter to I. Thus, 5-bromo-1-(4-fluorophenyl)-1-(3-dimethylaminopropyl)-1,3-dihydroisobenzofuran in Me3COMe at -78° was treated with BuLi followed by stirring for 2 h at -30°. Solid CO2 was added followed by stirring for 16 h at room temperature to give 5-carboxy-1-(4-fluorophenyl)-1-(3-dimethylaminopropyl)-1,3-dihydroisobenzofuran. The latter was heated with sulfamide and SOCl2 in sulfolane at 130° for 2 h to give I.

IT **59729-33-8P**, Citalopram
RL: **IMF (Industrial manufacture)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**
(preparation of Citalopram from 5-halo-1-(4-fluorophenyl)-1-(3-dimethylaminopropyl)-1,3-dihydroisobenzofuran)

RN 59729-33-8 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



IT **64169-39-7**
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(preparation of Citalopram from 5-halo-1-(4-fluorophenyl)-1-(3-dimethylaminopropyl)-1,3-dihydroisobenzofuran)

RN 64169-39-7 CAPLUS

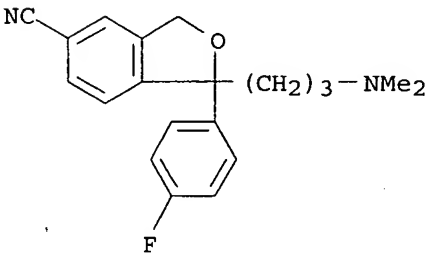
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)

AB Citalopram and other phthalanes I [R1 = CN, R2 = halogen, trifluoromethyl, CN, acyl] are made by treating a salt of I [R1 = halogen] with cuprous cyanide. Thus, 100g I.oxalate [R1 = Br, R2 = F] was treated with 35 g CuCN in diglyme at 150-155° for 3 h to give 35 g I [R1 = CN, R2 = F] as the hydrobromide.

IT **59729-32-7P**, Citalopram hydrobromide **59729-33-8P**, Citalopram
RL: **IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)**
(preparation of phthalanes)

RN 59729-32-7 CAPLUS

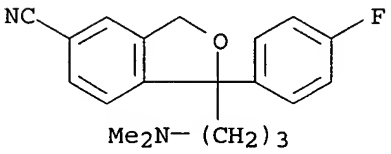
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)



● HBr

RN 59729-33-8 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



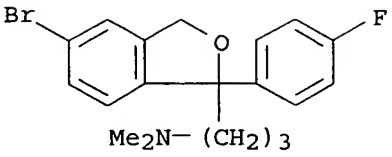
IT **64372-43-6**
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(preparation of phthalanes)

RN 64372-43-6 CAPLUS

CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

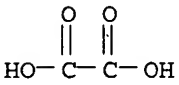
CM 1

CRN 64169-39-7
CMF C19 H21 Br F N O



CM 2

CRN 144-62-7
CMF C2 H2 O4



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 18 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:550142 CAPLUS
DOCUMENT NUMBER: 137:78853
TITLE: Preparation of Citalopram from 5-halo-1-(4-fluorophenyl)-1-(3-dimethylaminopropyl)-1,3-dihydroisobenzofuran.
INVENTOR(S): Petersen, Hans; Ahmadian, Haleh
PATENT ASSIGNEE(S): H. Lundbeck A/S, Den.
SOURCE: Patentschrift (Switz.), 15 pp.
CODEN: SWXXAS
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

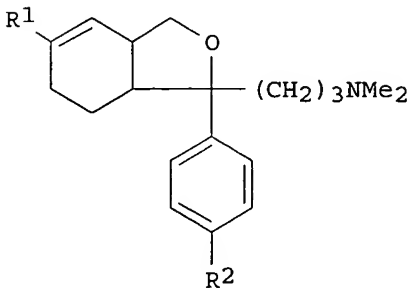
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CH 691969	A	20011215	CH 2001-1522	20010816
CA 2354880	AA	20020122	CA 2001-2354880	20010809
CA 2354880	C	20030603		
CA 2354877	AA	20020218	CA 2001-2354877	20010809
CA 2354877	C	20060502		
FI 2001001621	A	20020219	FI 2001-1621	20010809
FI 2001001622	A	20020219	FI 2001-1622	20010809
IL 144816	A1	20050925	IL 2001-144816	20010809
IT 2001MI1785	A1	20020218	IT 2001-MI1785	20010813
IT 2001MI1786	A1	20020218	IT 2001-MI1786	20010813
IN 194521	A	20041113	IN 2001-MA665	20010813
GB 2362647	A1	20011128	GB 2001-19733	20010814
GB 2362647	B2	20020918		
ZA 2001006687	A	20020214	ZA 2001-6687	20010814
DK 200101216	A5	20020219	DK 2001-1216	20010814
DK 200101219	A5	20020219	DK 2001-1219	20010814
NO 2001003942	A	20020219	NO 2001-3942	20010814
NO 2001003943	A	20020219	NO 2001-3943	20010814
GB 2365865	A1	20020227	GB 2001-19734	20010814

ACCESSION NUMBER: 2002:695968 CAPLUS
DOCUMENT NUMBER: 137:216863
TITLE: Preparation of phthalanes
INVENTOR(S): Hamied, Yusuf Khwaja; Kankan, Rajendra Narayanrao; Rao, Dhanmaraj Ramachandra
PATENT ASSIGNEE(S): Cipla Ltd., India; Wain, Christopher Paul
SOURCE: PCT Int. Appl., 11 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002070501	A1	20020912	WO 2002-GB1054	20020307
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2442613	AA	20020912	CA 2002-2442613	20020307
EP 1366034	A1	20031203	EP 2002-702553	20020307
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
EE 200300424	A	20031215	EE 2003-424	20020307
TR 200301444	T2	20040921	TR 2003-1444	20020307
RU 2276148	C2	20060510	RU 2003-129659	20020307
LT 5167	B	20041025	LT 2003-86	20030930
BG 108232	A	20050430	BG 2003-108232	20031006
LV 13132	B	20040620	LV 2003-107	20031007
ZA 2003008039	A	20041117	ZA 2003-8039	20031016
US 2004092755	A1	20040513	US 2003-471052	20031118
US 6903228	B2	20050607		

PRIORITY APPLN. INFO.: GB 2001-5627 A 20010307
WO 2002-GB1054 W 20020307

OTHER SOURCE(S): CASREACT 137:216863; MARPAT 137:216863
GI



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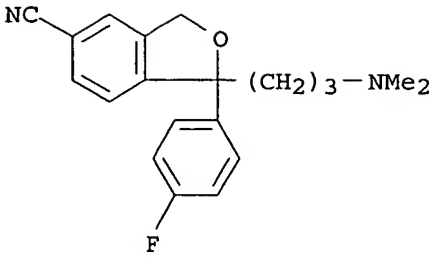
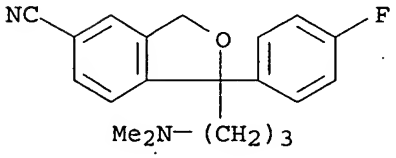
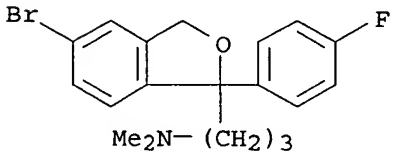


● HBr

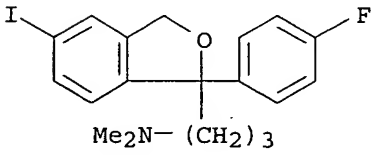
RN 59729-33-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



IT **64169-39-7 260066-78-2**
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(cyanation process for the preparation of citalopram from)
RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



RN 260066-78-2 CAPLUS
CN 1-Isobenzofuranpropanamine, 1-(4-fluorophenyl)-1,3-dihydro-5-iodo-N,N-dimethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 17 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN

Bakthavathsalan
PATENT ASSIGNEE(S): Ranbaxy Laboratories Limited, India
SOURCE: PCT Int. Appl., 14 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002072565	A1	20020919	WO 2002-IB690	20020308
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2439856	AA	20020919	CA 2002-2439856	20020308
EP 1370545	A1	20031217	EP 2002-702634	20020308
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CN 1496358	A	20040512	CN 2002-806116	20020308
BR 2002007895	A	20041228	BR 2002-7895	20020308
JP 2005500256	T2	20050106	JP 2002-571481	20020308
US 2005085534	A1	20050421	US 2003-469329	20020308
PRIORITY APPLN. INFO.:			IN 2001-DE264 A	20010309
			WO 2002-IB690 W	20020308

OTHER SOURCE(S): CASREACT 137:232543

AB An improved and industrially advantageous process for the preparation of citalopram and pharmaceutically acceptable acid addition salts consists of reacting a precursor substituted with a bromo or an iodo group in the same position as the cyano group in citalopram with a cyanide source in a solvent in the present of a N-containing base; the citalopram free base may then be salified with a pharmaceutically acceptable acids.

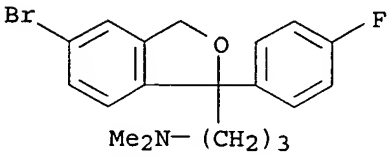
IT **59729-32-7P**, Citalopram hydrobromide **59729-33-8P**, Citalopram
RL: **IMF (Industrial manufacture)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**
(cyanation process for the preparation of citalopram)

RN 59729-32-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)

IT **64372-43-6 479065-02-6**
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(process for the preparation of citalopram)
RN 64372-43-6 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

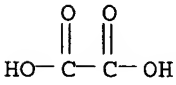
CM 1

CRN 64169-39-7
CMF C19 H21 Br F N O

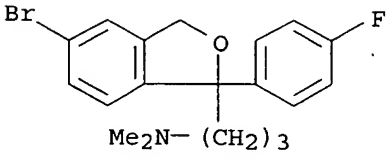


CM 2

CRN 144-62-7
CMF C2 H2 O4



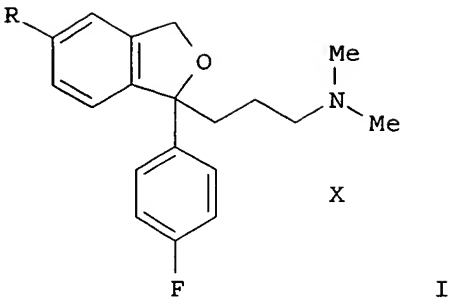
RN 479065-02-6 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, hydrobromide (9CI) (CA INDEX NAME)



● HBr

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 16 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:716262 CAPLUS
DOCUMENT NUMBER: 137:232543
TITLE: Cyanation process for the preparation of citalopram
INVENTOR(S): Biswas, Sujay; Sharma, Tarun Kant; Kumar, Yatendra; Sathyanarayana, Swargam; Vijayaraghavan,



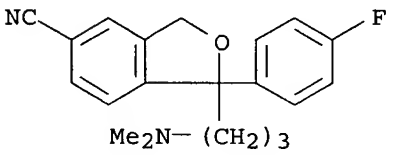
I

AB An improved process for the preparation of citalopram via substitution of the halogen of halophthalane salts I (R = halogen; X = oxalate, fumarate, maleate, citrate, acetate, formate, hydrochloride, hydrobromide, sulfate) using cuprous cyanide in an organic solvent. Thus, bromophthalane oxalate I (R = Br, X = oxalate) was reacted CuCN in diglyme under a nitrogen atmospheric at
150-155° for 3 h to form citalopram which was converted to its HBr salt I (R = CN, X = HBr).

IT **59729-33-8P**, (±)-Citalopram
RL: **IMF (Industrial manufacture)**; RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)
(process for the preparation of citalopram)

RN 59729-33-8 CAPLUS

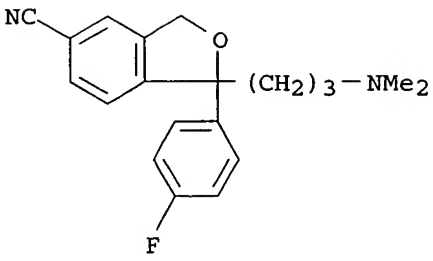
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



IT **59729-32-7P**, (±)-Citalopram hydrobromide **85118-27-0P**, (±)-Citalopram hydrochloride **207559-01-1P**, (±)-Citalopram oxalate
RL: **IMF (Industrial manufacture)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**
(process for the preparation of citalopram)

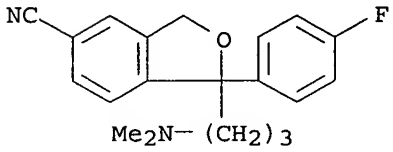
RN 59729-32-7 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)



● HBr

RN 85118-27-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrochloride (9CI) (CA INDEX NAME)



● HCl

RN 207559-01-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 59729-33-8
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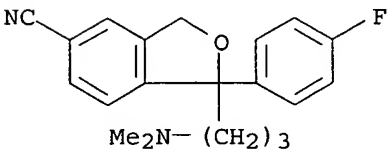
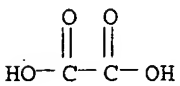
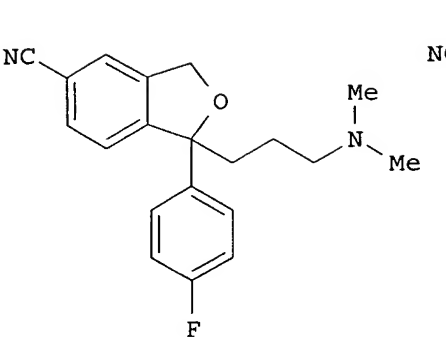


CM 2

CRN 144-62-7
CMF C2 H2 O4





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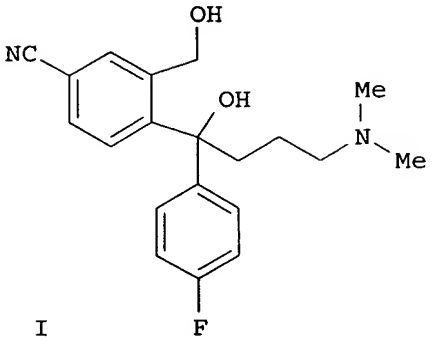

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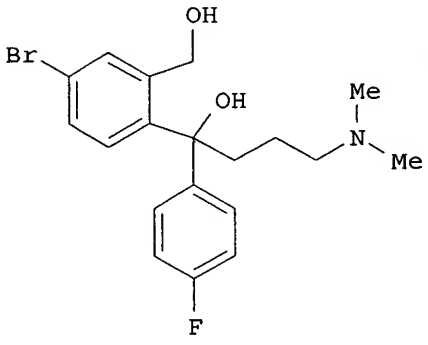

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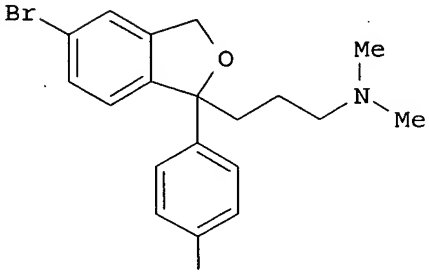


IV

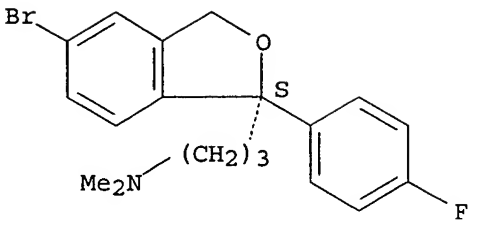
AB A novel method is provided for the manufacture of the antidepressant escitalopram, i.e., (S)-I. The method comprises chromatog. separation of the enantiomers of either (1) citalopram, i.e., (±)-I, or (2) an intermediate in its production, using a chiral stationary phase such as Chiralpak AD or Chiralcel OD. Novel chiral intermediates for the synthesis of escitalopram, made by said method, are also provided. For example, the intermediate nitrile diol (±)-II was resolved using Chiralpak AD stationary phase on a Novasep Licosep 10-50 simulated moving bed chromatograph with MeCN mobile phase at 30°, to give both enantiomers of II with purity exceeding 99% ee. Similarly resolved in 96-99% yield and >99% ee were bromide diol (±)-III and bromophthalane (±)-IV, using Chiralpak AD and Chiralcel OD, resp. Resolution of (±)-IV was performed on a 500-g scale using 98:2 isohexane/isopropanol (vol/vol), and also on a smaller scale using supercrit. CO2 with MeOH/Et2NH/CF3CO2H modifier. The obtained bromide (S)-(+)-IV underwent cyanation by Zn(CN)2 and Pd(PPh3)4 according to the method of WO 00/13648, giving escitalopram in 80% yield and 99.6% ee.

IT **488148-14-7P**, (S)-(+)-1-(4-Fluorophenyl)-1-[3-(dimethylamino)propyl]-5-bromophthalane
RL: PUR (Purification or recovery); **RCT (Reactant)**; PREP (Preparation); **RACT (Reactant or reagent)**
(intermediate enantiomer; preparation of escitalopram via chromatog. resolution of citalopram or intermediates using carbohydrate-based chiral stationary phases)

RN 488148-14-7 CAPLUS

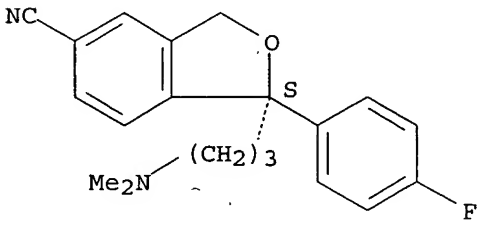
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



IT **128196-01-0P**, Escitalopram
RL: **IMF (Industrial manufacture); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)**
(preparation of escitalopram via chromatog. resolution of citalopram or intermediates using carbohydrate-based chiral stationary phases)
RN 128196-01-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

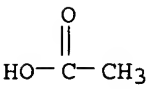
L45 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:8116 CAPLUS
DOCUMENT NUMBER: 138:55857
TITLE: Process for the preparation of citalopram
INVENTOR(S): Hamied, Yusuf Khwaja; Kankan, Rajendra Narayanrao; Rao, Dharmaraj Ramachandra
PATENT ASSIGNEE(S): Cipla Limited, India
SOURCE: Brit. UK Pat. Appl., 11 pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2376945	A1	20021231	GB 2001-15708	20010627
PRIORITY APPLN. INFO.:			GB 2001-15708	20010627

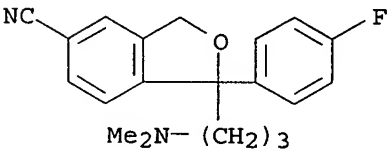
OTHER SOURCE(S): CASREACT 138:55857; MARPAT 138:55857
GI

CM 2

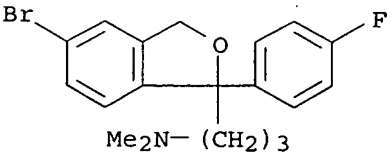
CRN 64-19-7
CMF C2 H4 O2



IT **59729-33-8P**, Citalopram
RL: **IMF (Industrial manufacture)**; RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)
(improved process for the manufacture of citalopram hydrobromide from 5-bromophthalide)
RN 59729-33-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



IT **64169-39-7P**, 1-(4-Fluorophenyl)-1-(3-dimethylamino-propyl)-5-bromophthalane
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(preparation and cyanation of; improved process for the manufacture of citalopram
hydrobromide from 5-bromophthalide)
RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:58074 CAPLUS
DOCUMENT NUMBER: 138:122548
TITLE: Method for the preparation of escitalopram via chromatographic resolution of citalopram or its intermediates using carbohydrate-based chiral

stationary phases

INVENTOR(S): Bech Sommer, Michael; Nielsen, Ole; Petersen, Hans; Ahmadian, Haleh; Pedersen, Henrik; Brosen, Peter; Geiser, Fiona; Lee, James; Cox, Geoffey; Dapremont, Olivier; Suteu, Christina; Assenza, Sebastian P.; Hariharan, Shankar; Nair, Usha

PATENT ASSIGNEE(S): H. Lundbeck A/S, Den.

SOURCE: PCT Int. Appl., 33 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

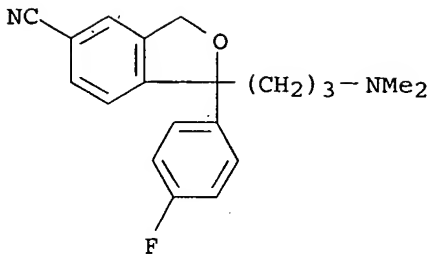
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003006449	A1	20030123	WO 2002-DK491	20020712
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2451124	AA	20030123	CA 2002-2451124	20020712
EP 1409472	A1	20040421	EP 2002-750836	20020712
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
BR 2002010817	A	20040622	BR 2002-10817	20020712
CN 1527825	A	20040908	CN 2002-813998	20020712
JP 2004538276	T2	20041224	JP 2003-512221	20020712
ZA 2003009471	A	20041206	ZA 2003-9471	20031205
BG 108572	A	20050331	BG 2004-108572	20040209
US 2005065207	A1	20050324	US 2004-483824	20040930

PRIORITY APPLN. INFO.:	DK 2001-1101	A	20010713
	DK 2001-1851	A	20011211
	DK 2001-1852	A	20011211
	WO 2002-DK491	W	20020712

OTHER SOURCE(S): CASREACT 138:122548

GI

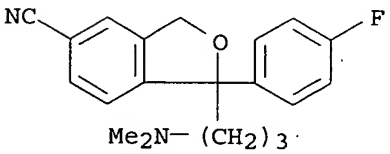


● HBr

RN 207559-01-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

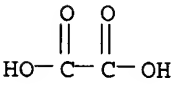
CM 1

CRN 59729-33-8
CMF C20 H21 F N2 O



CM 2

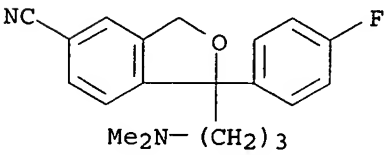
CRN 144-62-7
CMF C2 H2 O4



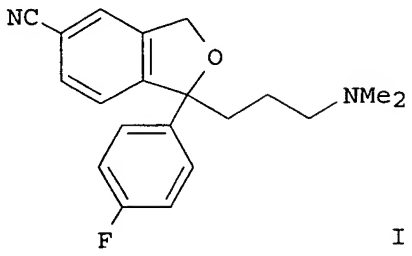
RN 500733-84-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monoacetate (9CI) (CA INDEX NAME)

CM 1

CRN 59729-33-8
CMF C20 H21 F N2 O



R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK
PRIORITY APPLN. INFO.: US 2001-315391P P 20010828
OTHER SOURCE(S): CASREACT 138:221462; MARPAT 138:221462
GI



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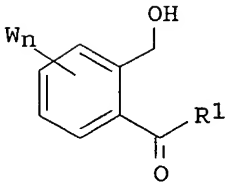
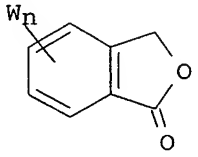


II



III

AB A process for the preparation of 1-(4'-fluorophenyl)-1-(3-dimethylamino-propyl)-5-phthalanecarbonitrile (I), or a pharmaceutically acceptable salt thereof, comprising performing two successive Grignard reactions on 5-bromophthalide, wherein the 5-bromophthalide is reacted with the first Grignard reagent in the presence of a Lewis acid, so reducing byproduct formation and improving yields. Also claimed is a process for the preparation of aryl ketone II [R1 = (un)substituted alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, cycloalkynyl, aryl, aralkyl, optionally containing one heteroatom; W = haloge, CN, OH, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, cycloalkynyl, aryl, aralkyl; n = 0 - 4] which comprises the step of reacting a phthalide III with a Grignard reagent, R1MgY (Y = halogen) and is characetrized in that the phthalide is reacted with a Lewis acid to form an adduct prior to reaction with the Grignard reagent. Thus,.

IT **59729-32-7P**, Citalopram hydrobromide **207559-01-1P**, Citalopram oxalate **500733-84-6P**, Citalopram acetate
RL: **IMF (Industrial manufacture); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)**
(improved process for the manufacture of citalopram hydrobromide from 5-bromophthalide)

RN 59729-32-7 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, monohydrobromide (9CI) (CA INDEX NAME)

MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,
TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

CA 2353618	AA	20000615	CA 1999-2353618		19991203
BR 9916873	A	20010821	BR 1999-16873		19991203
EP 1137644	A1	20011004	EP 1999-957263		19991203
EP 1137644	B1	20030910			

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

TR 200101605	T2	20011022	TR 2001-200101605		19991203
JP 2002531556	T2	20020924	JP 2000-586710		19991203
AU 759248	B2	20030410	AU 2000-15036		19991203
AT 249451	E	20030915	AT 1999-957263		19991203
NZ 511751	A	20030926	NZ 1999-511751		19991203
PT 1137644	T	20040130	PT 1999-957263		19991203
ES 2204175	T3	20040416	ES 1999-957263		19991203
IL 143082	A1	20040620	IL 1999-143082		19991203
ZA 2001003987	A	20020516	ZA 2001-3987		20010516
HR 2001000418	A1	20020630	HR 2001-418		20010601
US 2002032205	A1	20020314	US 2001-874392		20010604
NO 2001002802	A	20010807	NO 2001-2802		20010607
BG 105646	A	20020228	BG 2001-105646		20010625
HK 1043121	A1	20051216	HK 2002-104563		20020619
PRIORITY APPLN. INFO.:			US 1998-111360P	P	19981208
			DK 1998-1631	A	19981209
			WO 1999-DK676	W	19991203
			US 2000-632117	A	20000803
			WO 2001-US23487	A	20010726

OTHER SOURCE(S): MARPAT 133:43427
GI

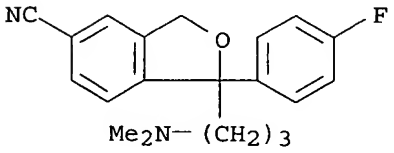
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The title compds. [I; R1 = H, halo, CF3, etc.; R2, R3 = H, CF3, alkyl, etc.; n = 1-5; m = 0-1; A = N(R4)DsZq, II-IV (wherein Z = O, S; s = 0-1; q = 0-1; R4 = H, alkyl, alkenyl, etc.; D = alkylene, alkenylene, alkynylene); B = (un)substituted Ph, indolyl, etc.; Ar = (un)substituted Ph, thienyl, furanyl, etc.] and their pharmaceutically acceptable acid addition salts which are potently binding to the 5-HT1A receptor, were prepared Thus, reacting 5-(4-bromobutyl)-1,4-benzodioxane (preparation given) with (+)-1-[3-(methylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydroisobenzofuran-5-carbonitrile in the presence of K2CO3 in Me iso-Bu ketone afforded 73% (+)-V which showed IC50 of 39 nM against 3H-5-CT binding and IC50 of 60 nM against serotonin reuptake.

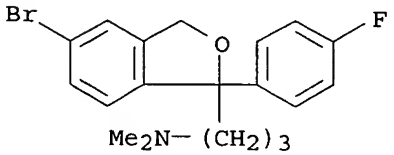
IT **274908-99-5P 274909-01-2P 274909-03-4P**
274909-05-6P 274909-07-8P 274909-08-9P
274909-09-0P 274909-11-4P 274909-17-0P
274909-23-8P 274909-24-9P 274909-25-0P
274909-26-1P 274909-27-2P 274909-28-3P
274909-29-4P 274909-30-7P 274909-31-8P
274909-32-9P 274909-33-0P 274909-34-1P
274909-35-2P 274909-36-3P 274909-37-4P
274909-38-5P 274909-39-6P 274909-40-9P
274909-41-0P 274909-42-1P 274909-43-2P

halophthalane in the corresponding Grignard reagent; this intermediate product may be converted into citalopram via intermediate formation of an aldehyde and in the subsequent transformation of the functional group via oxime or hydrazone; or else be converted into citalopram via reaction with compds. containing a cyano group bound to a leaving group. The process described makes it possible to obtain citalopram in high yields, and does not involve the use of drastic conditions of temperature

IT **59729-33-8P**, Citalopram
RL: **IMF (Industrial manufacture); PREP (Preparation)**
(process for synthesis of citalopram)
RN 59729-33-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



IT **64169-39-7D**, Grignard compound
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(process for synthesis of citalopram)
RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



L45 ANSWER 24 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:401811 CAPLUS
DOCUMENT NUMBER: 133:43427
TITLE: Preparation of benzofurans as 5-HT1A receptor ligands
INVENTOR(S): Andersen, Kim; Rottlander, Mario; Bogeso, Klaus Peter; Pedersen, Henrik; Ruhland, Thomas; Dancer, Robert
PATENT ASSIGNEE(S): H. Lundbeck A/S, Den.
SOURCE: PCT Int. Appl., 64 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000034263	A1	20000615	WO 1999-DK676	19991203

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK,

274909-44-3P 274909-45-4P 274909-48-7P
274909-49-8P 274909-50-1P 274909-51-2P
274909-52-3P 274909-53-4P 274909-54-5P
274909-55-6P 274909-57-8P 274909-58-9P
274909-59-0P 274909-60-3P 274909-61-4P
274909-62-5P 274909-63-6P 274909-64-7P
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274909-77-2P 274909-78-3P 274909-79-4P
274909-80-7P 274909-81-8P 274909-82-9P
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274910-05-3P 274910-06-4P 274910-07-5P
274910-08-6P 274910-09-7P 274910-10-0P
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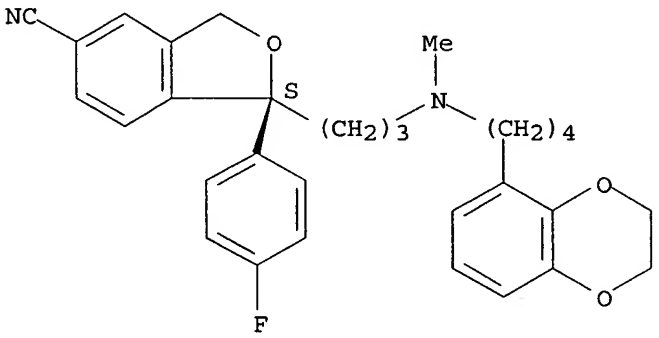
274910-15-5P 274910-17-7P 274910-52-0P
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); **SPN (Synthetic preparation)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)
(preparation of benzofurans as 5-HT1A receptor ligands)

RN 274908-99-5 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[4-(2,3-dihydro-1,4-benzodioxin-5-yl)butyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (+).

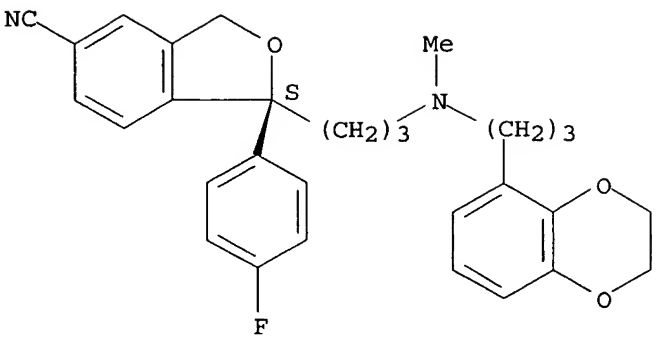


RN 274909-01-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(2,3-dihydro-1,4-benzodioxin-5-yl)propyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1S)-, ethanedioate (9CI) (CA INDEX NAME)

CM 1

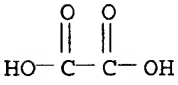
CRN 274909-00-1
CMF C30 H31 F N2 O3

Absolute stereochemistry.



CM 2

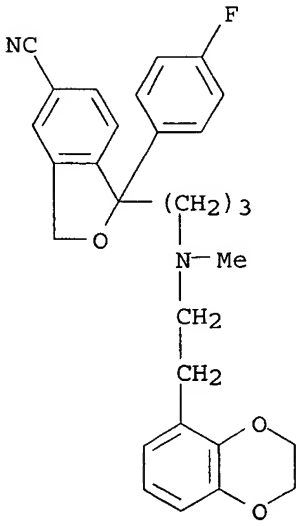
CRN 144-62-7
CMF C2 H2 O4



RN 274909-03-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(2,3-dihydro-1,4-benzodioxin-5-yl)ethyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro-, ethanedioate (9CI) (CA INDEX NAME)

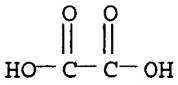
CM 1

CRN 274909-02-3
CMF C29 H29 F N2 O3



CM 2

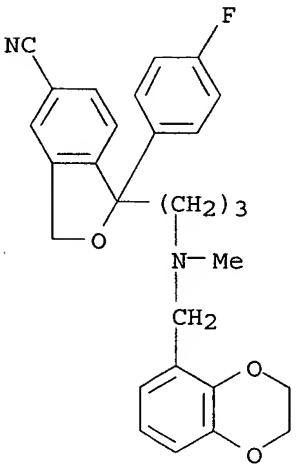
CRN 144-62-7
CMF C2 H2 O4



RN 274909-05-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[(2,3-dihydro-1,4-benzodioxin-5-yl)methyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro-, ethanedioate (9CI) (CA INDEX NAME)

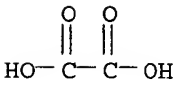
CM 1

CRN 274909-04-5
CMF C28 H27 F N2 O3

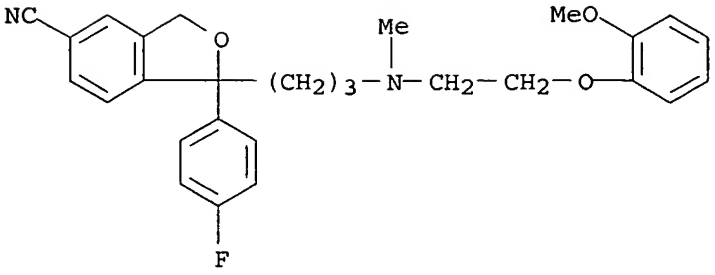


CM 2

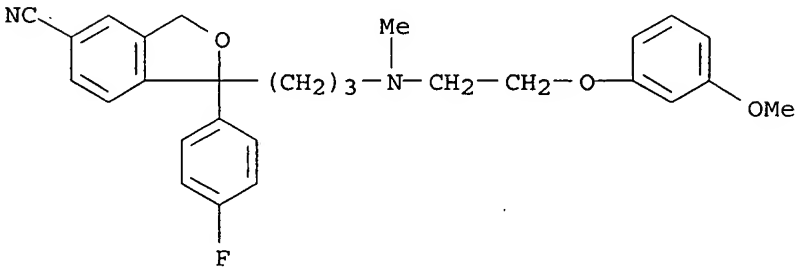
CRN 144-62-7
CMF C2 H2 O4



RN 274909-07-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(2-methoxyphenoxy)ethyl]methylamino]propyl]- (9CI) (CA INDEX NAME)

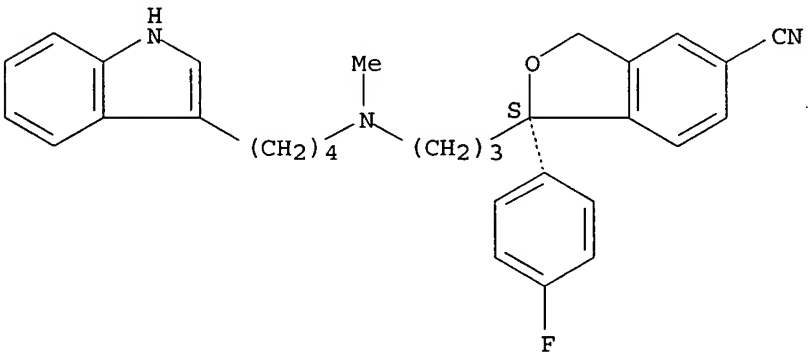


RN 274909-08-9 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(3-methoxyphenoxy)ethyl]methylamino]propyl]- (9CI) (CA INDEX NAME)



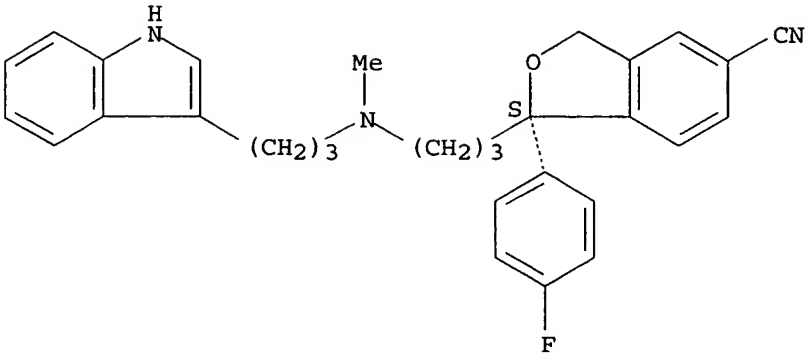
RN 274909-09-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[4-(1H-indol-3-yl)butyl]methylamino]propyl]-, (1S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

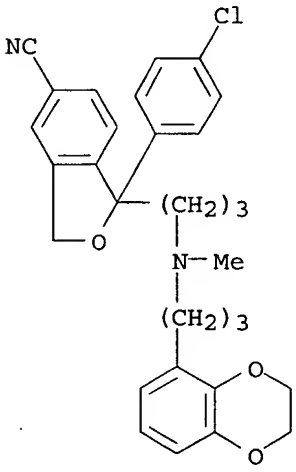


RN 274909-11-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(1H-indol-3-yl)propyl]methylamino]propyl]-, (1S)- (9CI) (CA INDEX NAME)

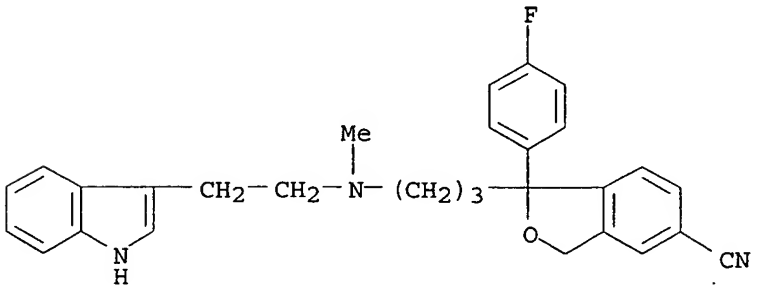
Absolute stereochemistry.



RN 274909-17-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-chlorophenyl)-1-[3-[[3-(2,3-dihydro-1,4-benzodioxin-5-yl)propyl]methylamino]propyl]-1,3-dihydro- (9CI) (CA INDEX NAME)

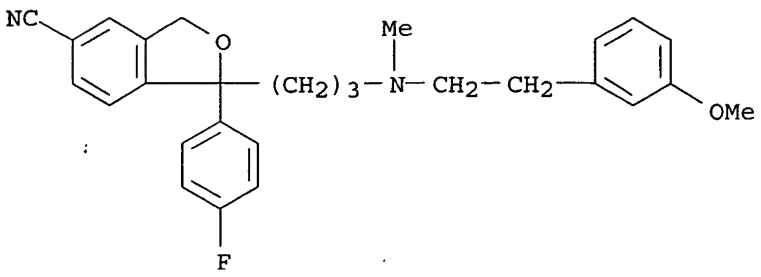


RN 274909-23-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(1H-indol-3-yl)ethyl]methylamino]propyl]- (9CI) (CA INDEX NAME)

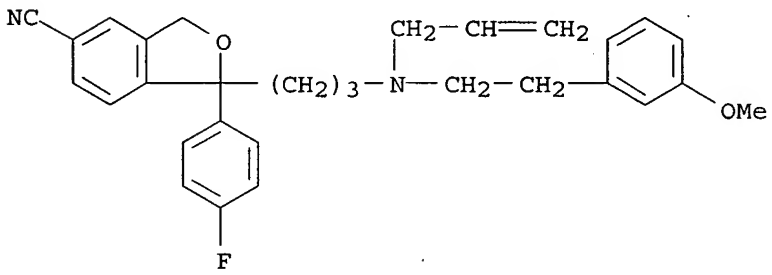


RN 274909-24-9 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(3-

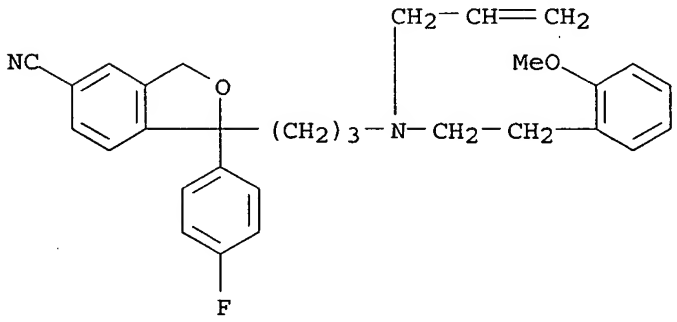
methoxyphenyl)ethyl]methylamino]propyl]- (9CI) (CA INDEX NAME)



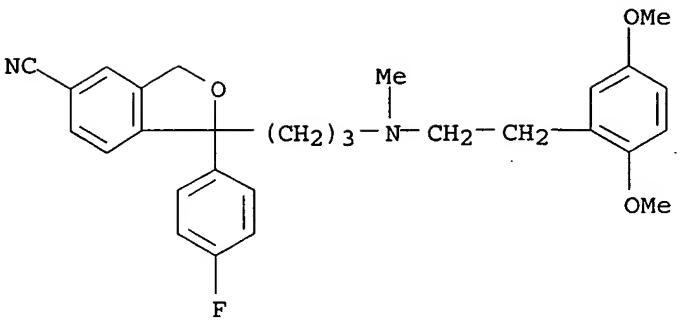
RN 274909-25-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(3-methoxyphenyl)ethyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



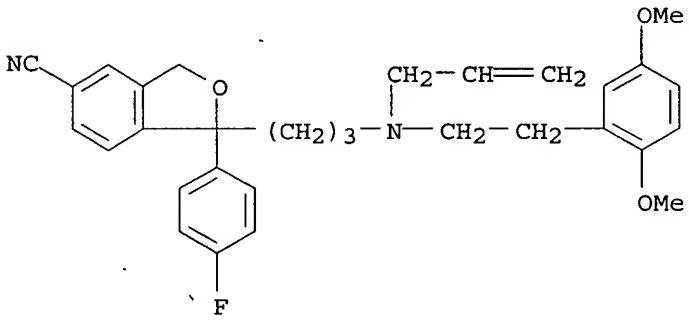
RN 274909-26-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(2-methoxyphenyl)ethyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



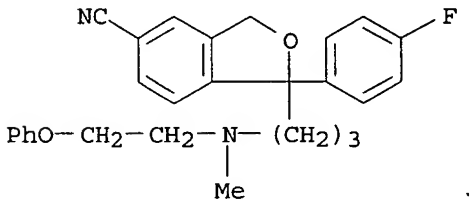
RN 274909-27-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(2,5-dimethoxyphenyl)ethyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



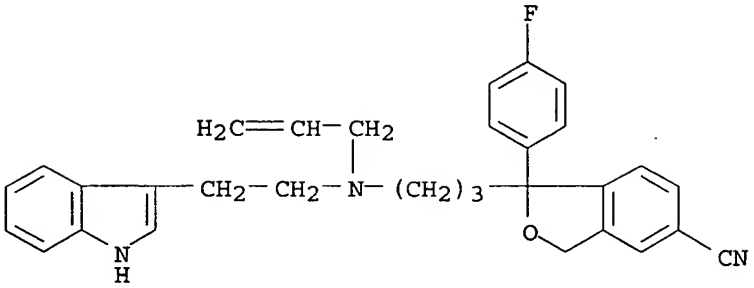
RN 274909-28-3 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(2,5-dimethoxyphenyl)ethyl]-2-propenylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



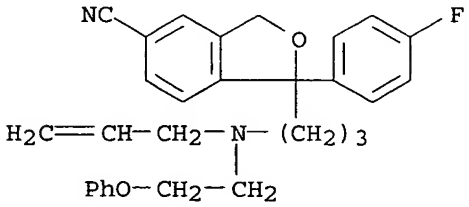
RN 274909-29-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[methyl(2-phenoxyethyl)amino]propyl]- (9CI) (CA INDEX NAME)



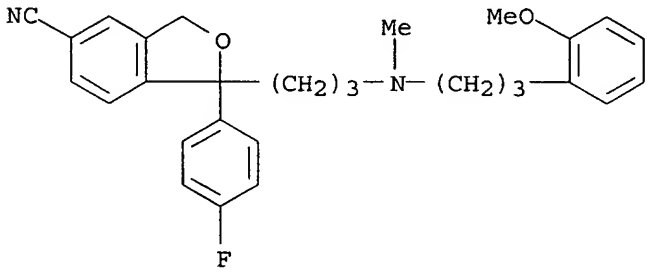
RN 274909-30-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(1H-indol-3-yl)ethyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



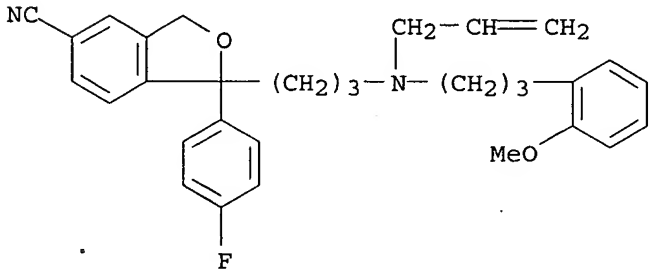
RN 274909-31-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[(2-phenoxyethyl)-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



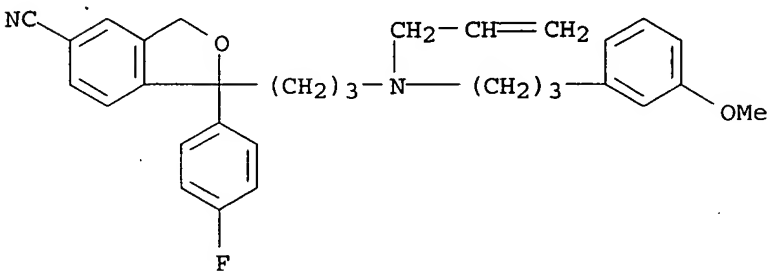
RN 274909-32-9 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(2-methoxyphenyl)propyl]methylamino]propyl]- (9CI) (CA INDEX NAME)



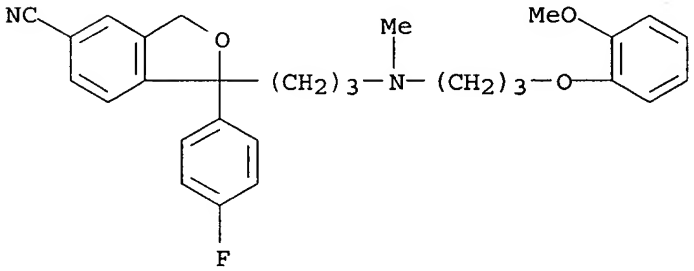
RN 274909-33-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(2-methoxyphenyl)propyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



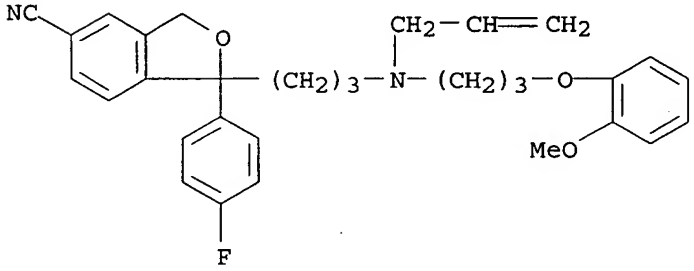
RN 274909-34-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(3-methoxyphenyl)propyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



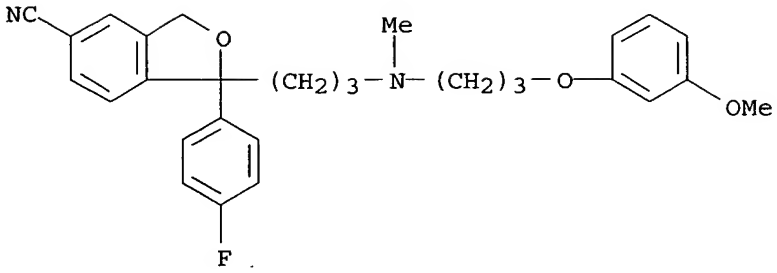
RN 274909-35-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(2-methoxyphenoxy)propyl]methylamino]propyl]- (9CI) (CA INDEX NAME)



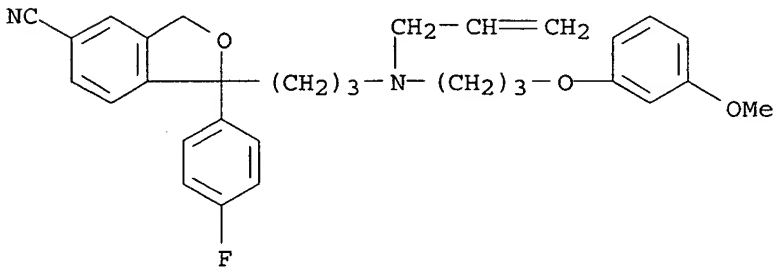
RN 274909-36-3 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(2-methoxyphenoxy)propyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



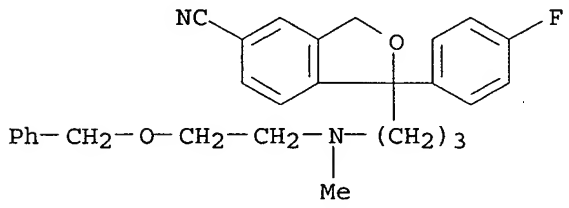
RN 274909-37-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(3-methoxyphenoxy)propyl]methylamino]propyl]- (9CI) (CA INDEX NAME)



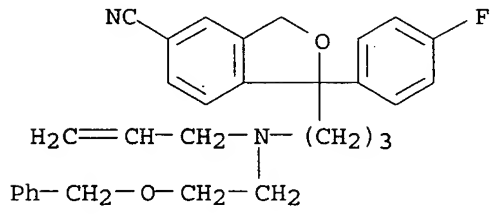
RN 274909-38-5 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(3-methoxyphenoxy)propyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



RN 274909-39-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[methyl[2-(phenylmethoxy)ethyl]amino]propyl]- (9CI) (CA INDEX NAME)

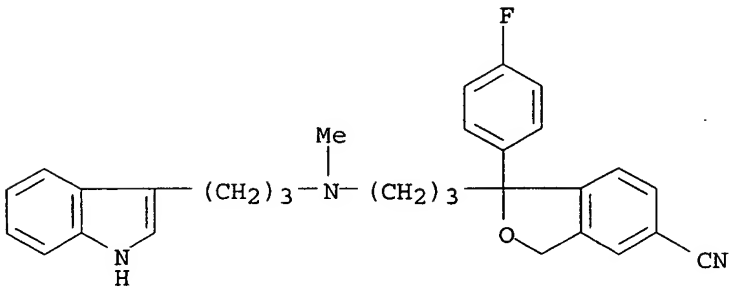


RN 274909-40-9 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(phenylmethoxy)ethyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)

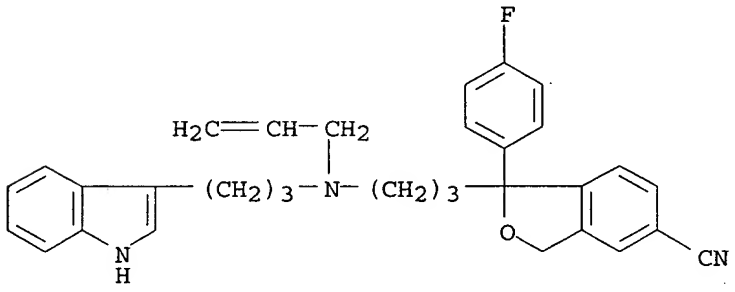


RN 274909-41-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(1H-

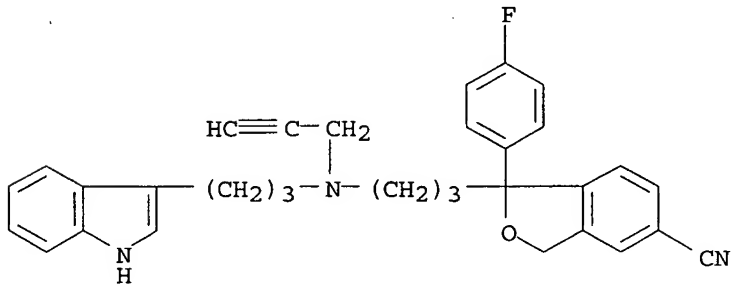
indol-3-yl)propyl]methylamino]propyl]- (9CI) (CA INDEX NAME)



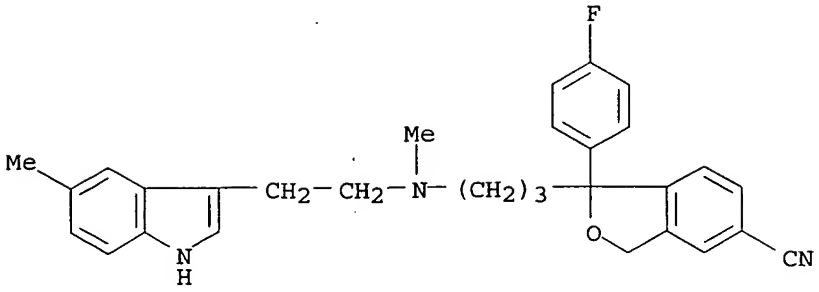
RN 274909-42-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(1H-indol-3-yl)propyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



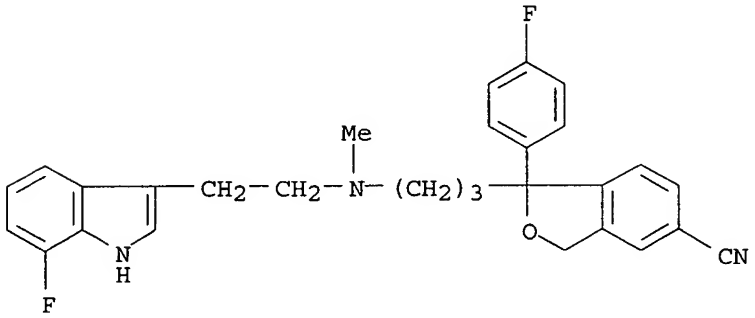
RN 274909-43-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(1H-indol-3-yl)propyl]-2-propynylamino]propyl]- (9CI) (CA INDEX NAME)



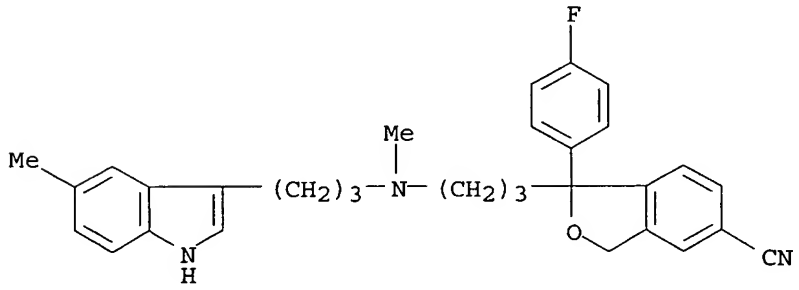
RN 274909-44-3 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[methyl[2-(5-methyl-1H-indol-3-yl)ethyl]amino]propyl]- (9CI) (CA INDEX NAME)



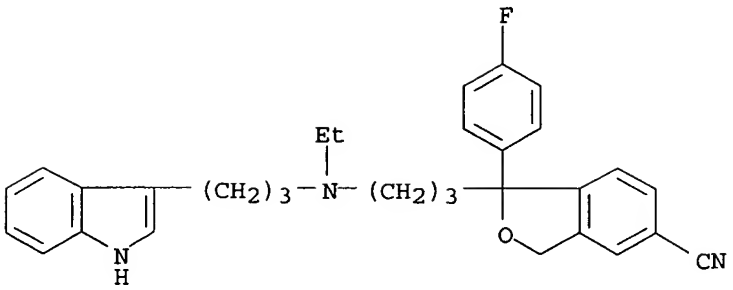
RN 274909-45-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(7-fluoro-1H-indol-3-yl)ethyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



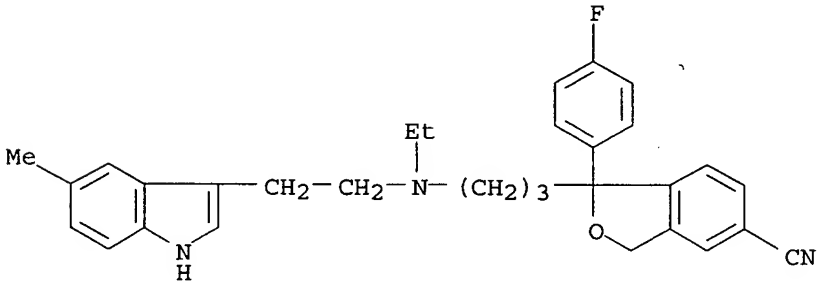
RN 274909-48-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[methyl[3-(5-methyl-1H-indol-3-yl)propyl]amino]propyl]- (9CI) (CA INDEX NAME)



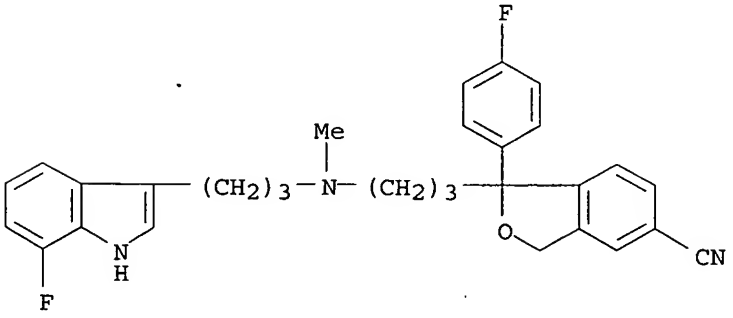
RN 274909-49-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[3-(1H-indol-3-yl)propyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



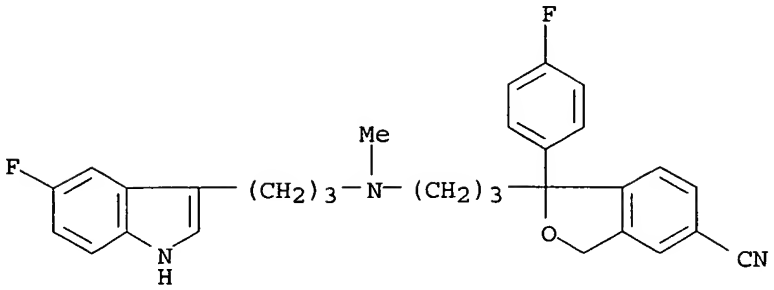
RN 274909-50-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[2-(5-methyl-1H-indol-3-yl)ethyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



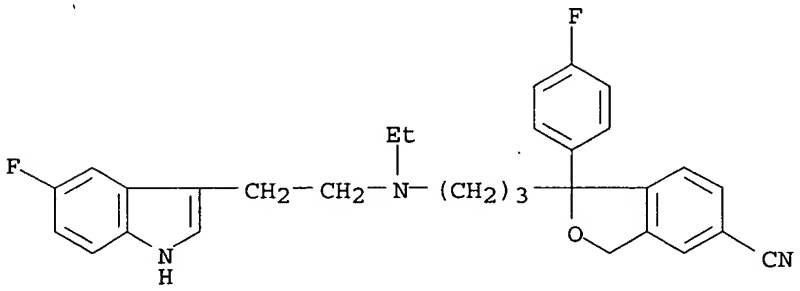
RN 274909-51-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(7-fluoro-1H-indol-3-yl)propyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



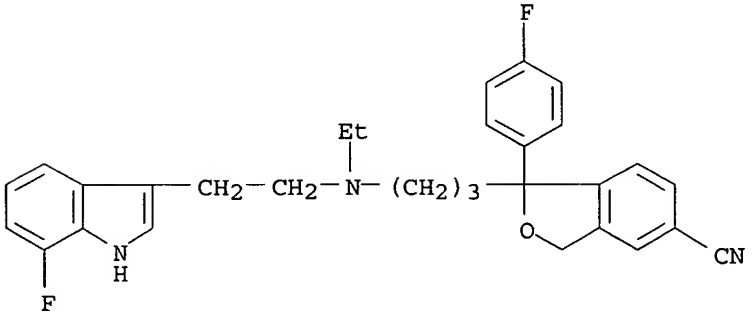
RN 274909-52-3 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(5-fluoro-1H-indol-3-yl)propyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



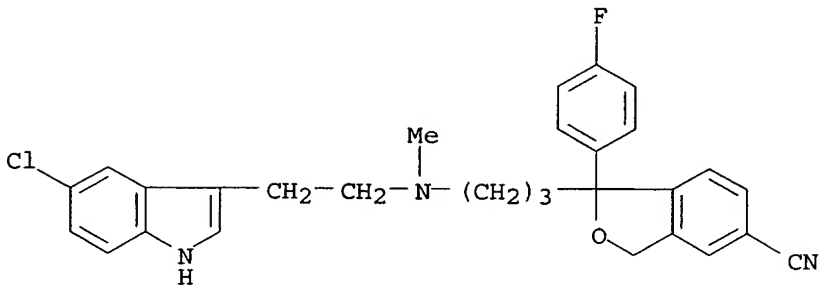
RN 274909-53-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[2-(5-fluoro-1H-indol-3-yl)ethyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



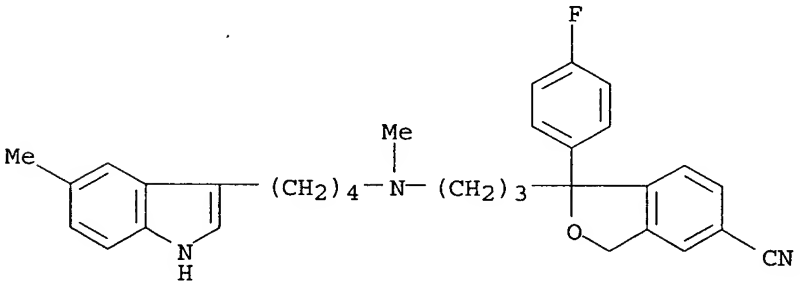
RN 274909-54-5 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[2-(7-fluoro-1H-indol-3-yl)ethyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



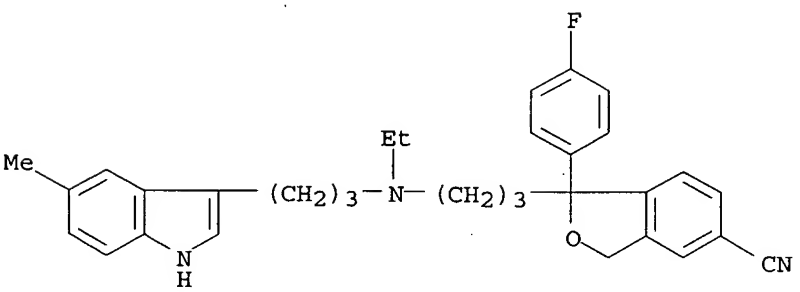
RN 274909-55-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5-chloro-1H-indol-3-yl)ethyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



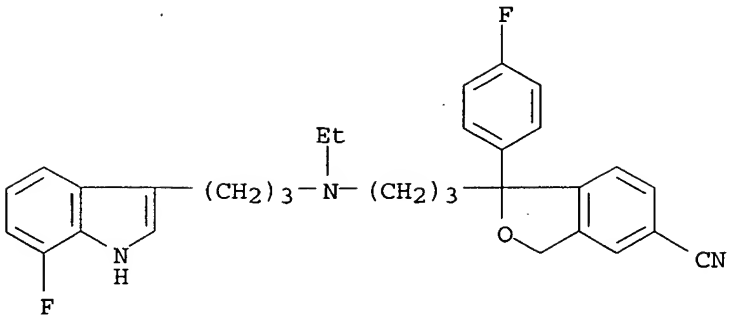
RN 274909-57-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[methyl[4-(5-methyl-1H-indol-3-yl)butyl]amino]propyl]- (9CI) (CA INDEX NAME)



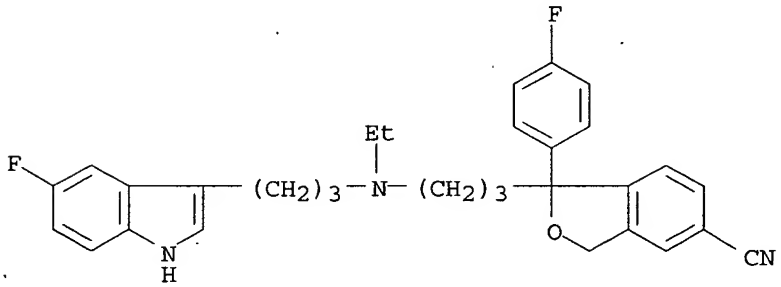
RN 274909-58-9 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[3-(5-methyl-1H-indol-3-yl)propyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



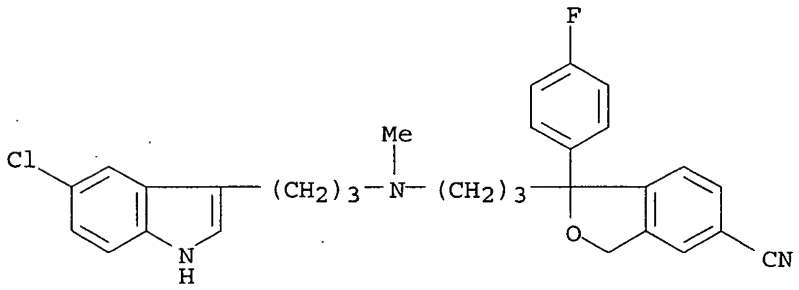
RN 274909-59-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[3-(7-fluoro-1H-indol-3-yl)propyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



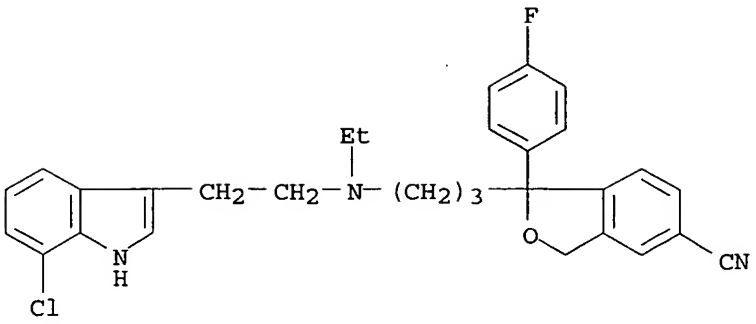
RN 274909-60-3 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[3-(5-fluoro-1H-indol-3-yl)propyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



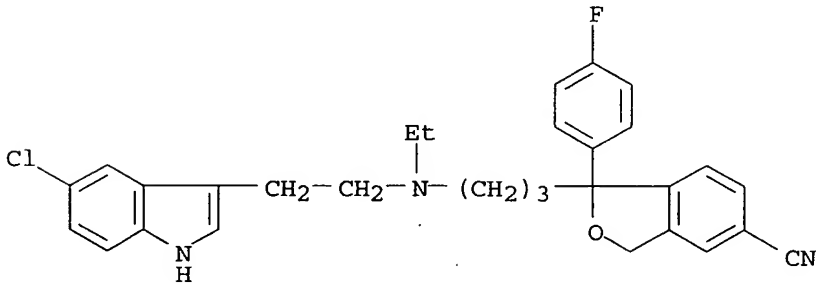
RN 274909-61-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(5-chloro-1H-indol-3-yl)propyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



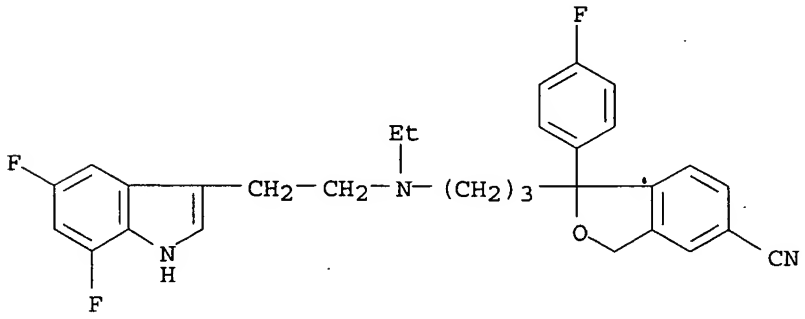
RN 274909-62-5 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(7-chloro-1H-indol-3-yl)ethyl]ethylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



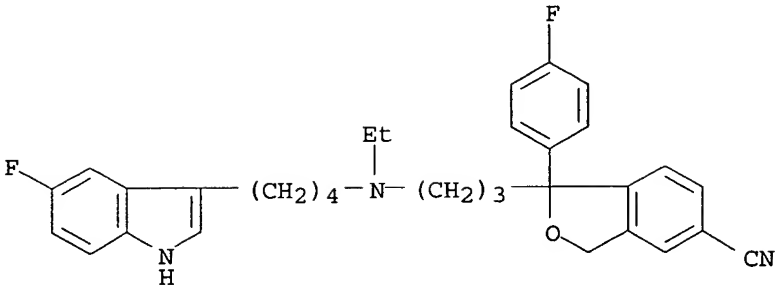
RN 274909-63-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5-chloro-1H-indol-3-yl)ethyl]ethylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



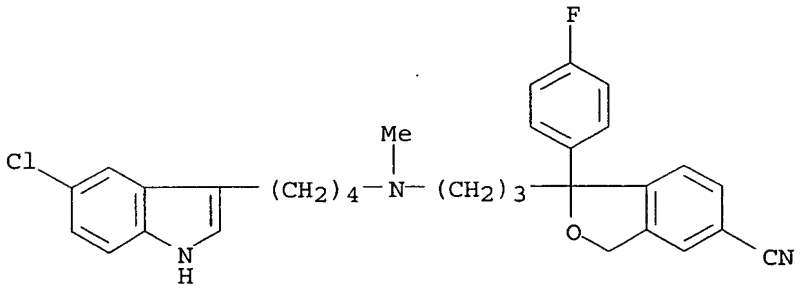
RN 274909-64-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5,7-difluoro-1H-indol-3-yl)ethyl]ethylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



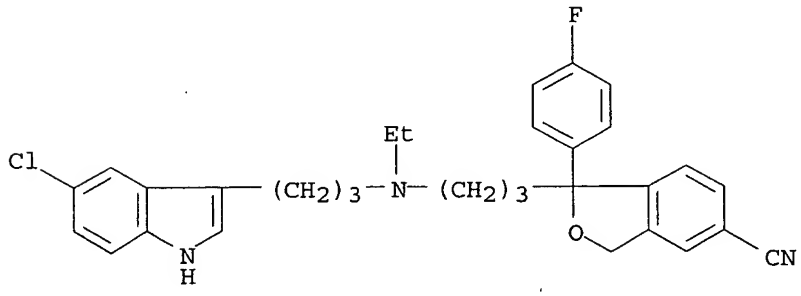
RN 274909-65-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[4-(5-fluoro-1H-indol-3-yl)butyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



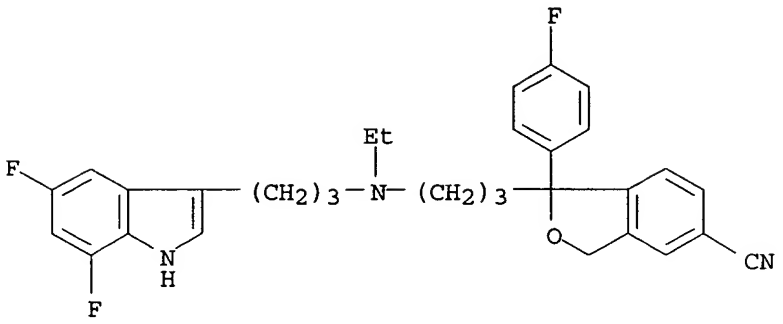
RN 274909-66-9 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[4-(5-chloro-1H-indol-3-yl)butyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



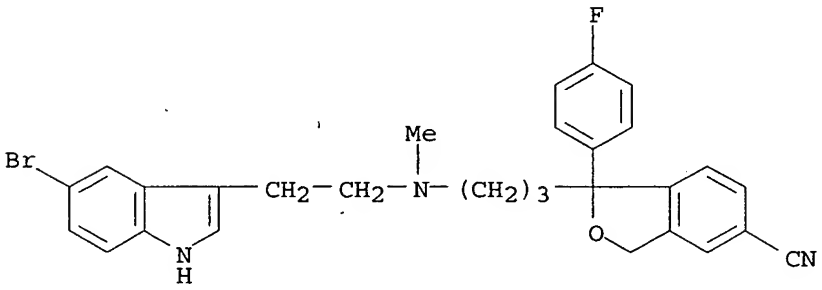
RN 274909-67-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(5-chloro-1H-indol-3-yl)propyl]ethylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



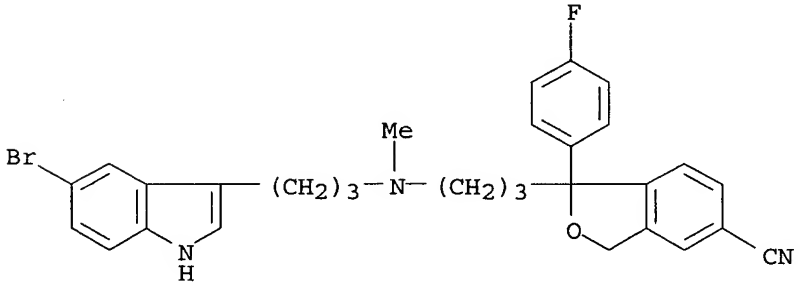
RN 274909-68-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(5,7-difluoro-1H-indol-3-yl)propyl]ethylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



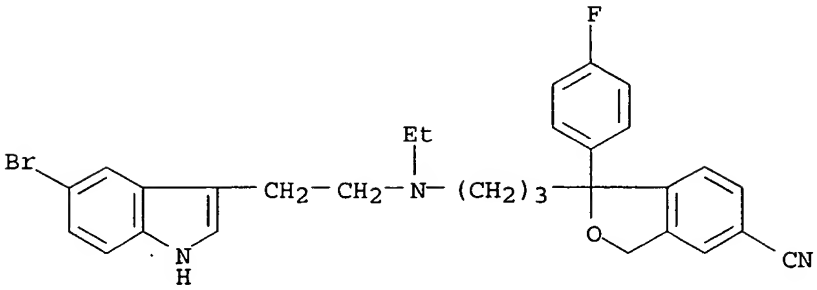
RN 274909-69-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5-bromo-1H-indol-3-yl)ethyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



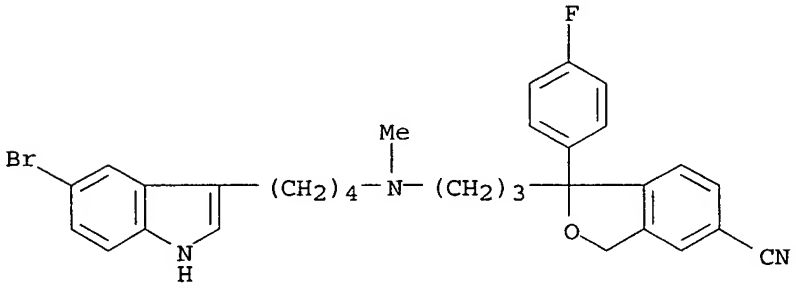
RN 274909-70-5 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(5-bromo-1H-indol-3-yl)propyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



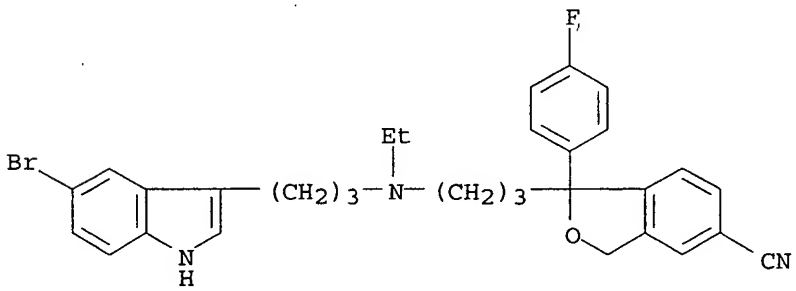
RN 274909-71-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5-bromo-1H-indol-3-yl)ethyl]ethylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



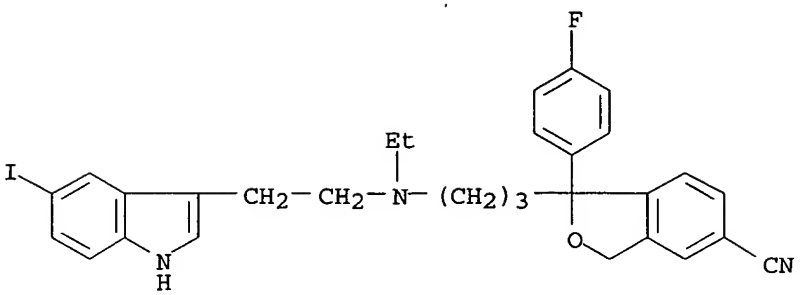
RN 274909-72-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[4-(5-bromo-1H-indol-3-yl)butyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



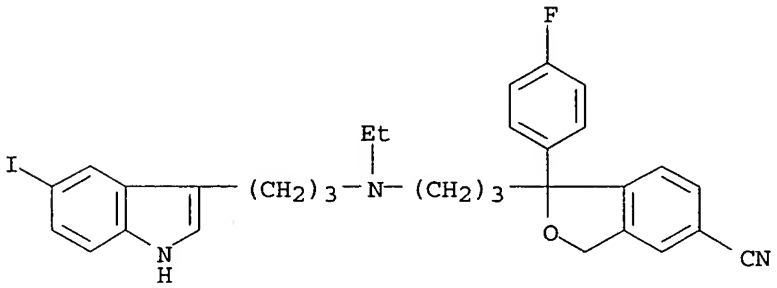
RN 274909-73-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(5-bromo-1H-indol-3-yl)propyl]ethylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



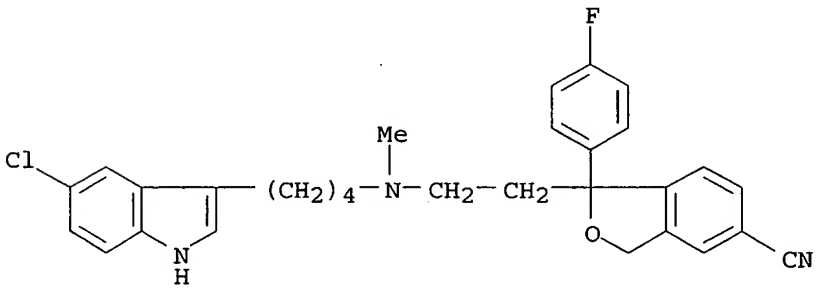
RN 274909-74-9 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[2-(5-iodo-1H-indol-3-yl)ethyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



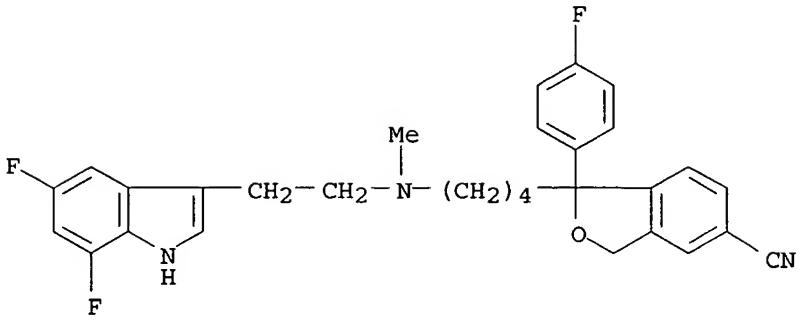
RN 274909-75-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[ethyl[3-(5-iodo-1H-indol-3-yl)propyl]amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



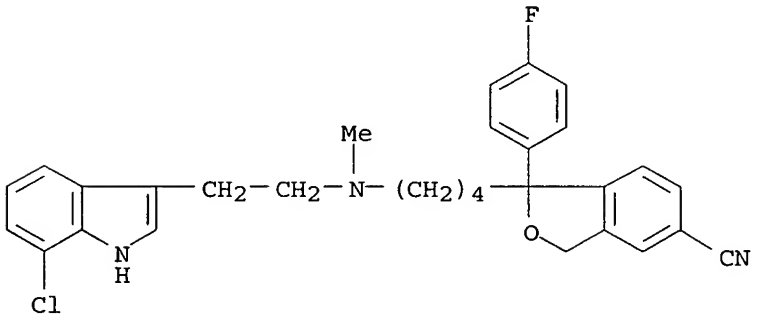
RN 274909-76-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[2-[[4-(5-chloro-1H-indol-3-yl)butyl]methylamino]ethyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



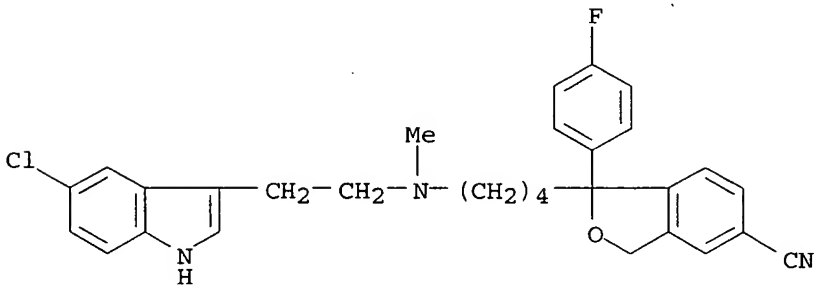
RN 274909-77-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[4-[[2-(5,7-difluoro-1H-indol-3-yl)ethyl]methylamino]butyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



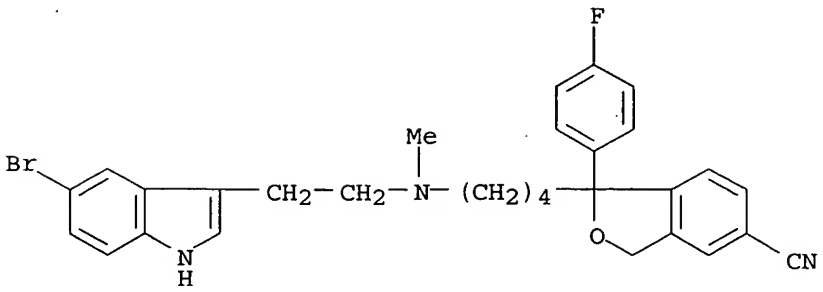
RN 274909-78-3 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[4-[[2-(7-chloro-1H-indol-3-yl)ethyl]methylamino]butyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



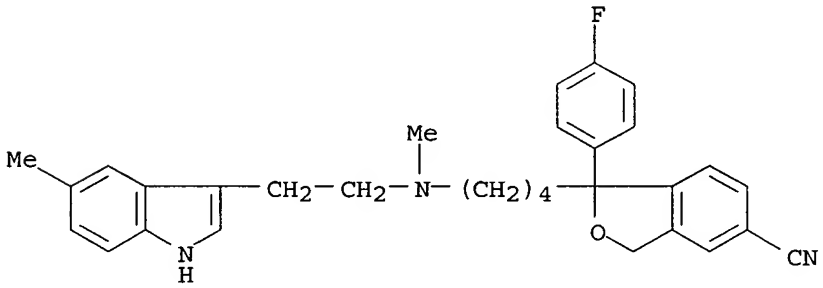
RN 274909-79-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[4-[[2-(5-chloro-1H-indol-3-yl)ethyl]methylamino]butyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



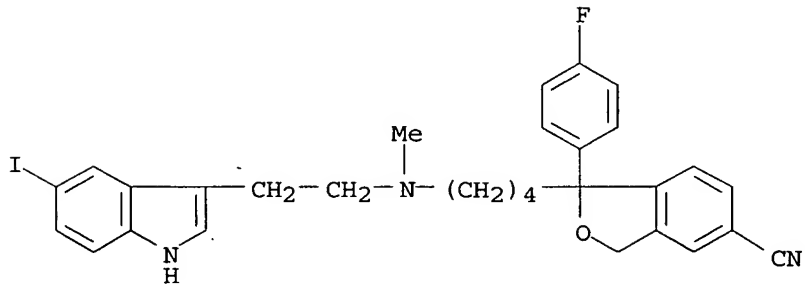
RN 274909-80-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[4-[[2-(5-bromo-1H-indol-3-yl)ethyl]methylamino]butyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



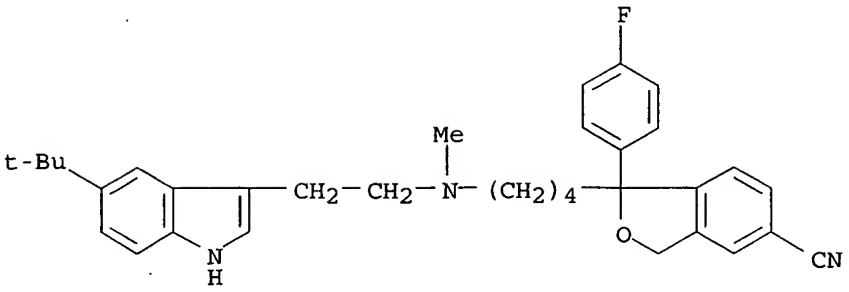
RN 274909-81-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[4-[methyl[2-(5-methyl-1H-indol-3-yl)ethyl]amino]butyl]- (9CI) (CA INDEX NAME)



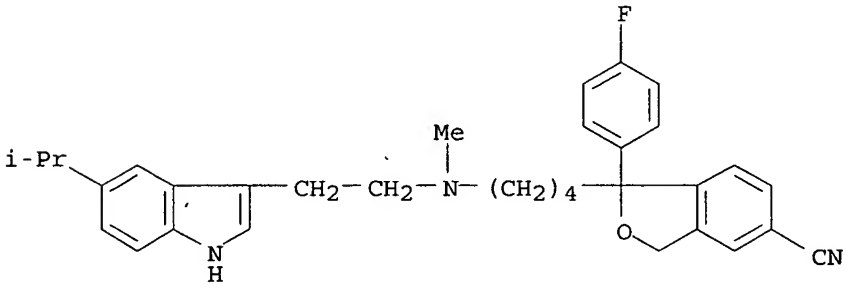
RN 274909-82-9 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[4-[[2-(5-iodo-1H-indol-3-yl)ethyl]methylamino]butyl]- (9CI) (CA INDEX NAME)



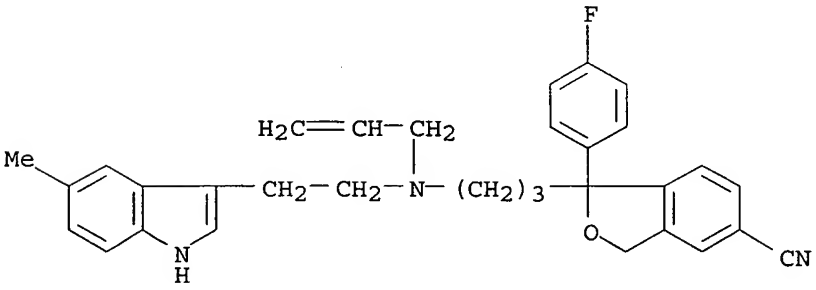
RN 274909-83-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[4-[[2-[5-(1,1-dimethylethyl)-1H-indol-3-yl]ethyl]methylamino]butyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



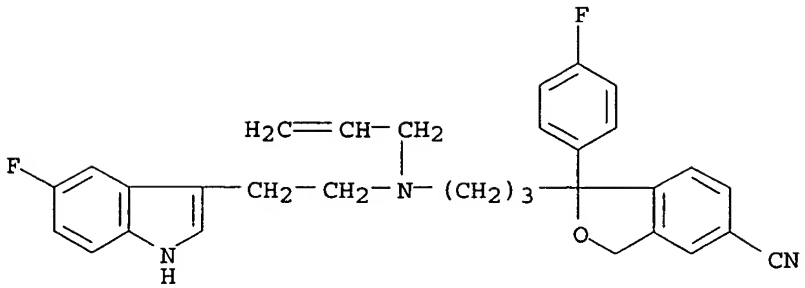
RN 274909-84-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[4-[methyl[2-[5-(1-methylethyl)-1H-indol-3-yl]ethyl]amino]butyl]- (9CI) (CA INDEX NAME)



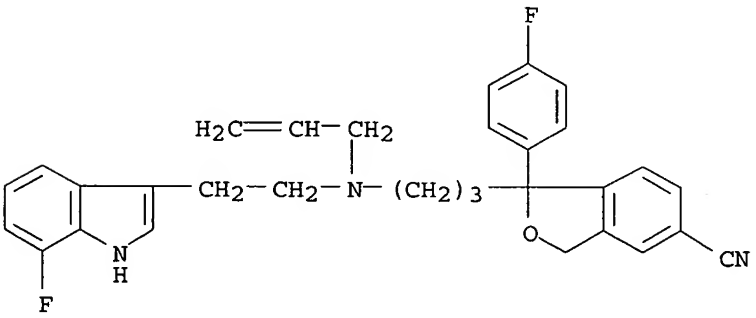
RN 274909-85-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(5-methyl-1H-indol-3-yl)ethyl]-2-propenylamino]propyl]- (9CI) (CA INDEX NAME)



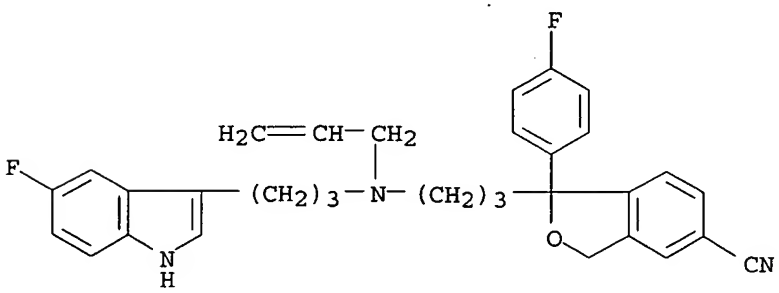
RN 274909-87-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5-fluoro-1H-indol-3-yl)ethyl]-2-propenylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



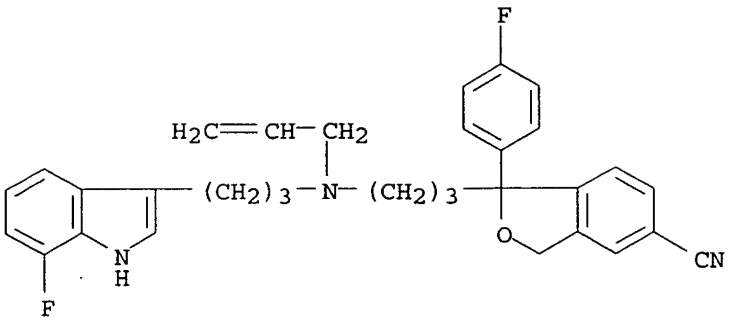
RN 274909-89-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(7-fluoro-1H-indol-3-yl)ethyl]-2-propenylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



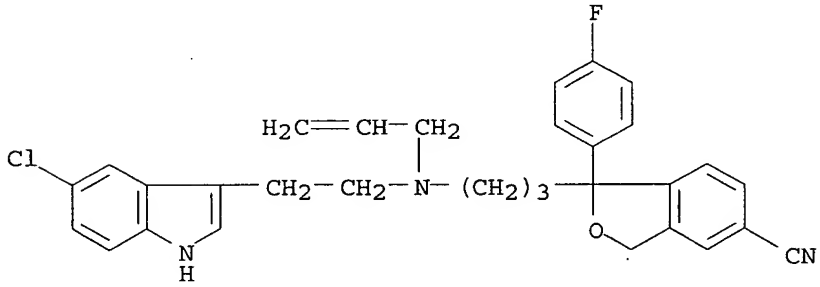
RN 274909-91-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(5-fluoro-1H-indol-3-yl)propyl]-2-propenylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



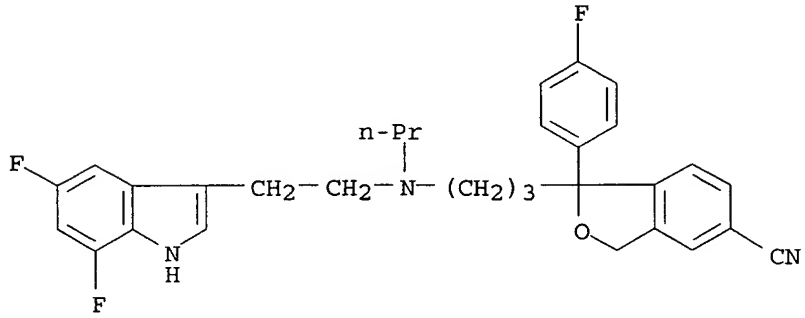
RN 274909-93-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(7-fluoro-1H-indol-3-yl)propyl]-2-propenylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



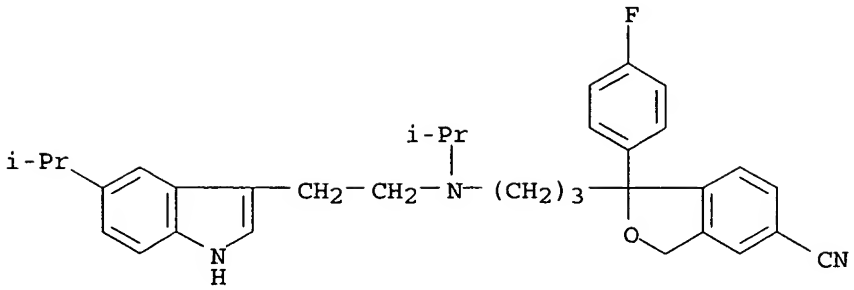
RN 274909-94-3 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5-chloro-1H-indol-3-yl)ethyl]-2-propenylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



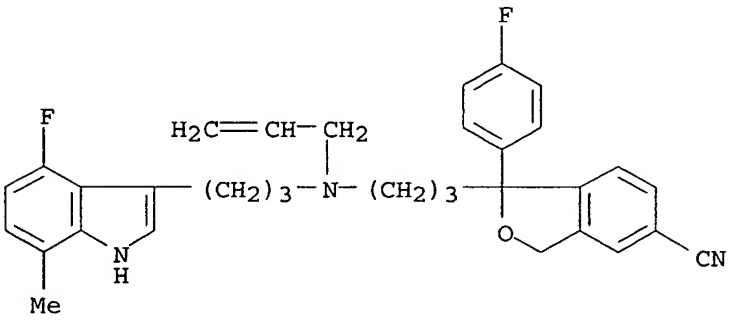
RN 274909-95-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5,7-difluoro-1H-indol-3-yl)ethyl]propylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



RN 274909-96-5 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[(1-methylethyl)[2-[5-(1-methylethyl)-1H-indol-3-yl]ethyl]amino]propyl]- (9CI) (CA INDEX NAME)



RN 274909-97-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(4-fluoro-7-methyl-1H-indol-3-yl)propyl]-2-propenylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



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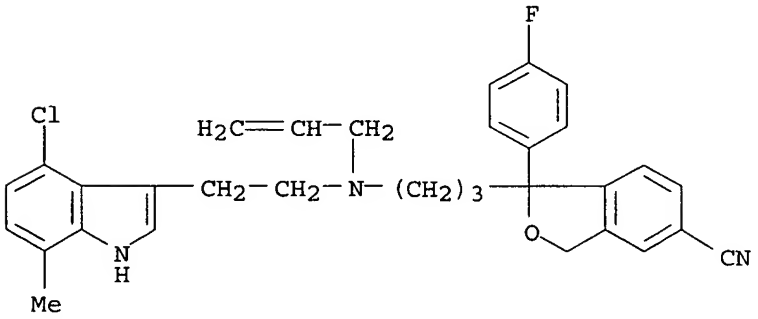
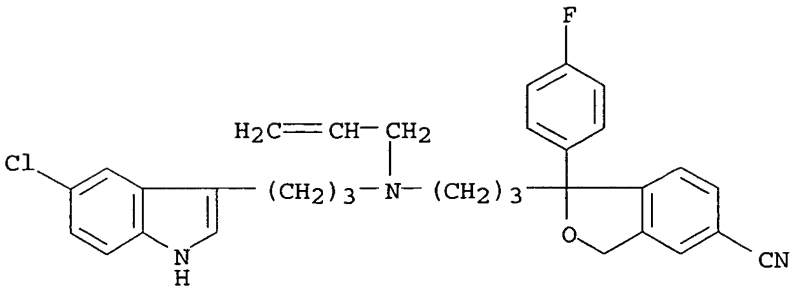
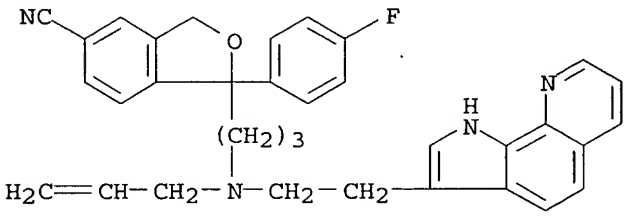
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(4-chloro-7-methyl-1H-indol-3-yl)ethyl]-2-propenylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



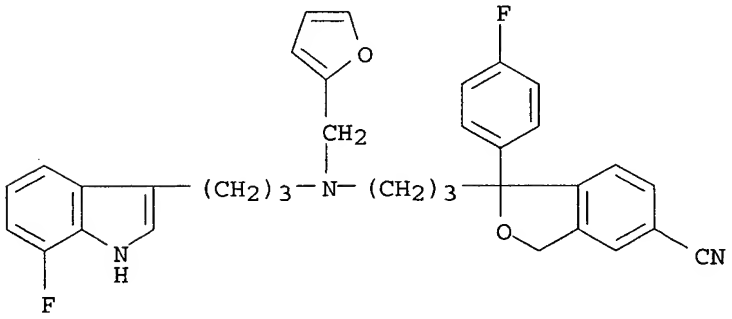
RN 274909-99-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(5-chloro-1H-indol-3-yl)propyl]-2-propenylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



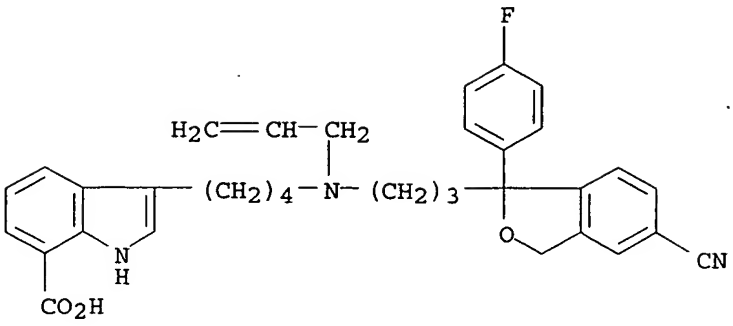
RN 274910-00-8 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[2-propenyl[2-(1H-pyrrolo[3,2-h]quinolin-3-yl)ethyl]amino]propyl]- (9CI) (CA INDEX NAME)



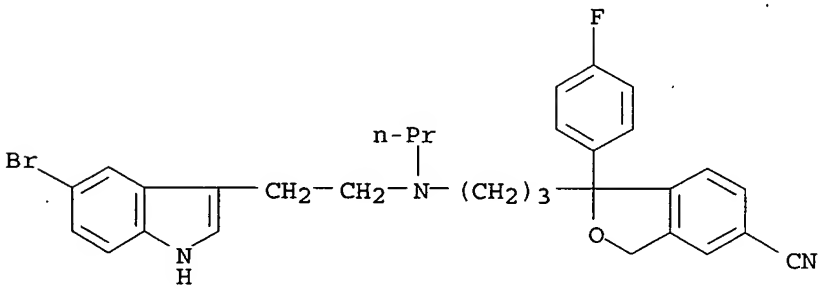
RN 274910-01-9 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(7-fluoro-1H-indol-3-yl)propyl](2-furanylmethyl)amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



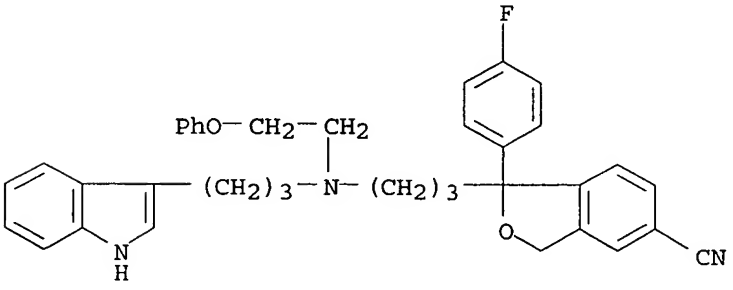
RN 274910-02-0 CAPLUS
CN 1H-Indole-7-carboxylic acid, 3-[4-[[3-[5-cyano-1-(4-fluorophenyl)-1,3-dihydro-1-isobenzofuranyl]propyl]-2-propenylamino]butyl]- (9CI) (CA INDEX NAME)



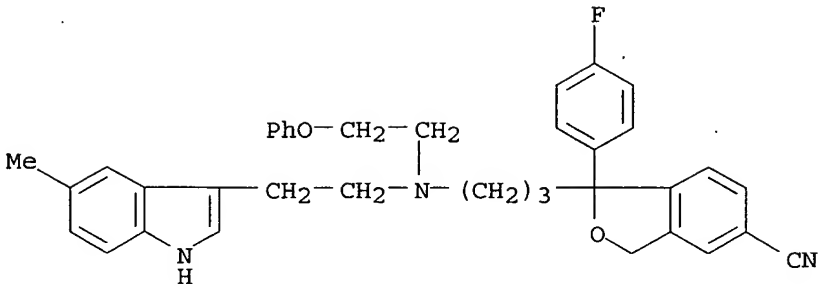
RN 274910-03-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5-bromo-1H-indol-3-yl)ethyl]propylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



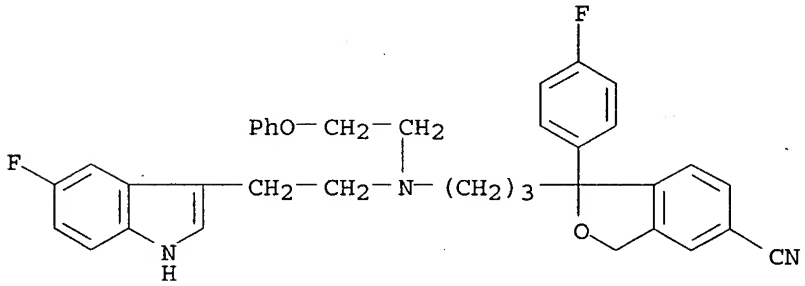
RN 274910-04-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(1H-indol-3-yl)propyl](2-phenoxyethyl)amino]propyl]- (9CI) (CA INDEX NAME)



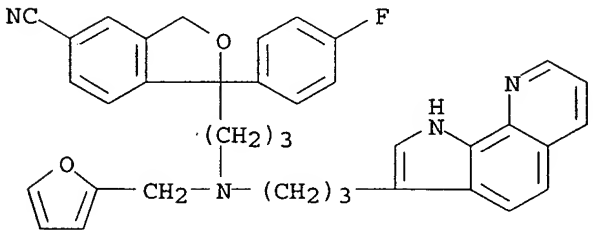
RN 274910-05-3 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-(5-methyl-1H-indol-3-yl)ethyl](2-phenoxyethyl)amino]propyl]- (9CI) (CA INDEX NAME)



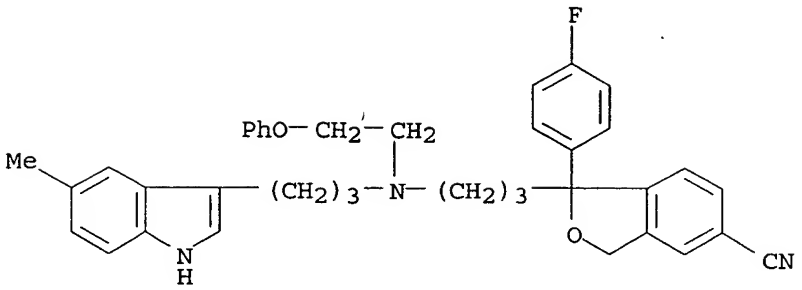
RN 274910-06-4 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5-fluoro-1H-indol-3-yl)ethyl](2-phenoxyethyl)amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



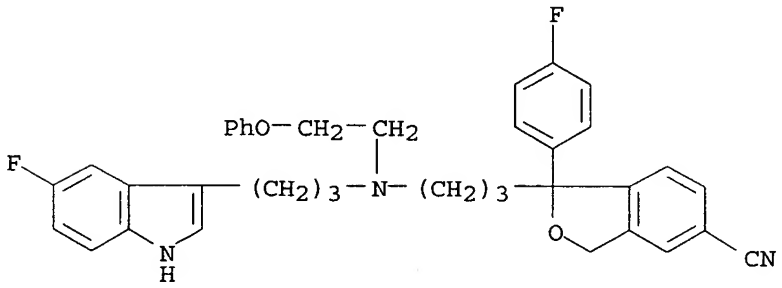
RN 274910-07-5 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1-[3-[(2-furanylmethyl)[3-(1H-pyrrolo[3,2-h]quinolin-3-yl)propyl]amino]propyl]-1,3-dihydro- (9CI) (CA INDEX NAME)



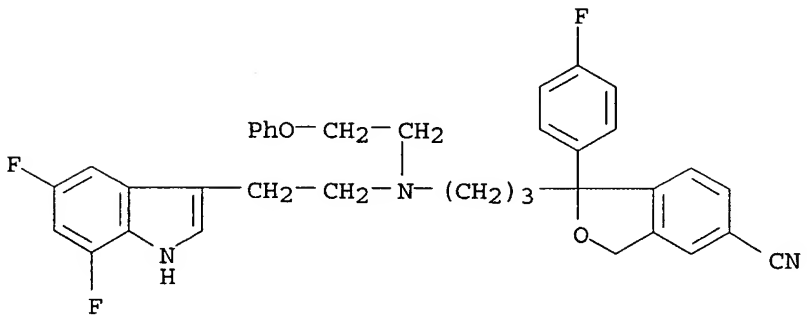
RN 274910-08-6 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[3-(5-methyl-1H-indol-3-yl)propyl](2-phenoxyethyl)amino]propyl]- (9CI) (CA INDEX NAME)



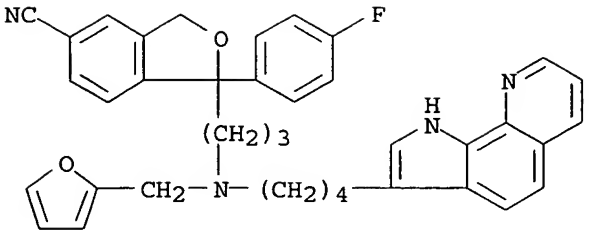
RN 274910-09-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(5-fluoro-1H-indol-3-yl)propyl](2-phenoxyethyl)amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



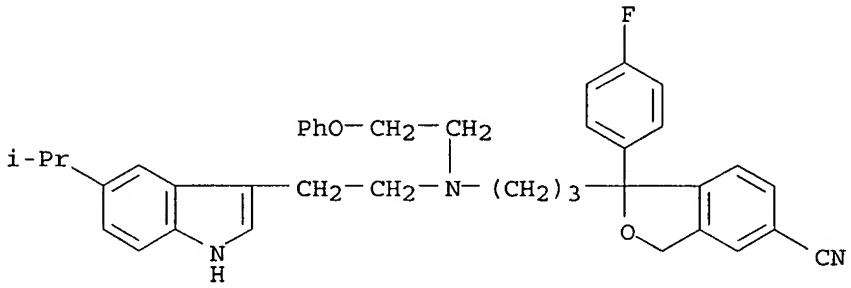
RN 274910-10-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5,7-difluoro-1H-indol-3-yl)ethyl](2-phenoxyethyl)amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



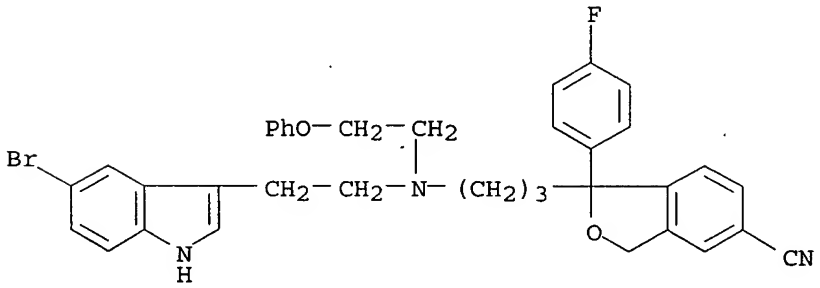
RN 274910-11-1 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1-[3-[(2-furanylmethyl)[4-(1H-pyrrolo[3,2-h]quinolin-3-yl)butyl]amino]propyl]-1,3-dihydro- (9CI) (CA INDEX NAME)



RN 274910-12-2 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-(4-fluorophenyl)-1,3-dihydro-1-[3-[[2-[5-(1-methylethyl)-1H-indol-3-yl]ethyl](2-phenoxyethyl)amino]propyl]- (9CI) (CA INDEX NAME)

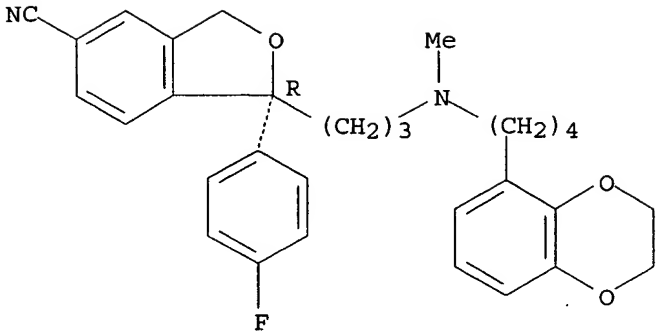


RN 274910-13-3 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[2-(5-bromo-1H-indol-3-yl)ethyl](2-phenoxyethyl)amino]propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)



RN 274910-15-5 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[4-(2,3-dihydro-1,4-benzodioxin-5-yl)butyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro-, (1R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



RN 274910-17-7 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[3-[[3-(2,3-dihydro-1,4-benzodioxin-5-yl)propyl]methylamino]propyl]-1-(4-fluorophenyl)-1,3-dihydro-, ethanedioate (9CI) (CA INDEX NAME)

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CRN 274910-16-6
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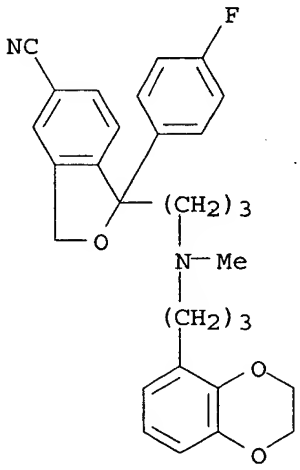

CM 2

CRN 144-62-7
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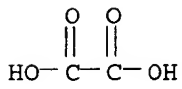
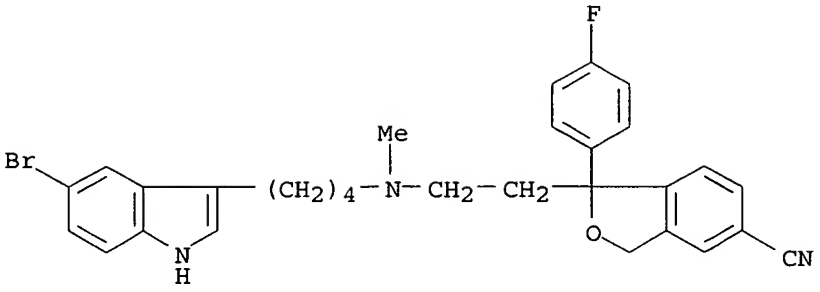
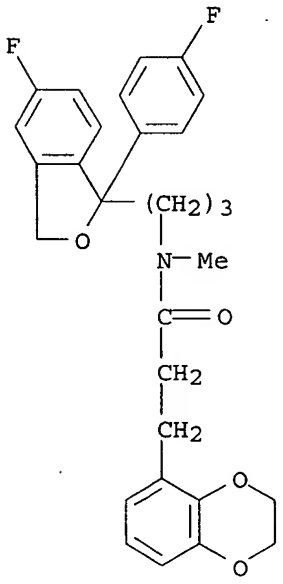


RN 274910-52-0 CAPLUS
CN 5-Isobenzofurancarbonitrile, 1-[2-[[4-(5-bromo-1H-indol-3-yl)butyl]methylamino]ethyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA

INDEX NAME)



IT **274910-18-8P**
RL: **RCT (Reactant)**; SPN (Synthetic preparation); PREP (Preparation); **RACT (Reactant or reagent)**
(preparation of benzofurans as 5-HT1A receptor ligands)
RN 274910-18-8 CAPLUS
CN 1,4-Benzodioxin-5-propanamide, N-[3-[5-fluoro-1-(4-fluorophenyl)-1,3-dihydro-1-isobenzofuranyl]propyl]-2,3-dihydro-N-methyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 25 OF 25 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:175646 CAPLUS
DOCUMENT NUMBER: 132:194283
TITLE: Method for the preparation of citalopram
INVENTOR(S): Petersen, Hans; Rock, Michael Harold; Svane, Henrik
PATENT ASSIGNEE(S): H. Lundbeck A/S, Den.
SOURCE: PCT Int. Appl., 13 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000013648	A2	20000316	WO 1999-DK640	19991122
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OTHER SOURCE(S): CASREACT 132:194283; MARPAT 132:194283

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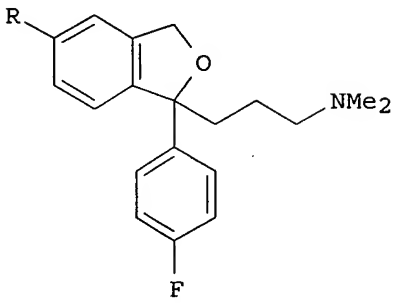


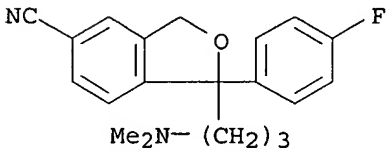
I

AB The title compound [I; R = CN], the well known antidepressant (no data), was prepared by reacting a compound I [wherein R = halo, CF3(CF2)nSO2; n = 0-8] with a cyanide source in the presence of a palladium catalyst and a catalytic amount of Cu+ or Zn2+, or with Zn(CN)2 in the presence of a palladium catalyst.

IT **59729-33-8P**, Citalopram **207559-01-1P**
RL: **IMF (Industrial manufacture)**; **SPN (Synthetic preparation)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)
(method for the preparation of citalopram)

RN 59729-33-8 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro- (9CI) (CA INDEX NAME)

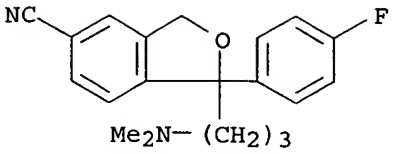


RN 207559-01-1 CAPLUS

CN 5-Isobenzofurancarbonitrile, 1-[3-(dimethylamino)propyl]-1-(4-fluorophenyl)-1,3-dihydro-, ethanedioate (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 59729-33-8
CMF C20 H21 F N2 O



CM 2

CRN 144-62-7
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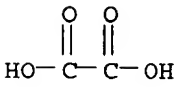
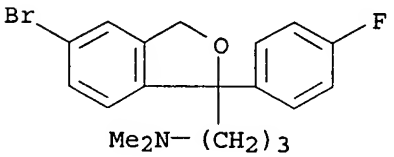


IT **64169-39-7**
RL: **RCT (Reactant); RACT (Reactant or reagent)**
(method for the preparation of citalopram)
RN 64169-39-7 CAPLUS
CN 1-Isobenzofuranpropanamine, 5-bromo-1-(4-fluorophenyl)-1,3-dihydro-N,N-dimethyl- (9CI) (CA INDEX NAME)



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